PUBLIC WORKS DEPARTMENT
MADRAS PRESIDENCY

ADMINISTRATION REPORT

FOR THE YEAR 1945-46

PART II—IRRIGATION

PRINTED BY THE SUPERINTENDENT
GOVERNMENT PRESS
MADRAS
1947

Price, 5 rupees 8 annas

TABLE OF CONTENTS.

CONTENTS

APPENDIX II.

APPENDIX III.

INDEX TO *PHOTOGRAPHIC VIEWS, DIAGRAMS AND SKETCHES CONTAINED IN THE REPORT.

PUBLIC WORKS DEPARTMENT, MADRAS PRESIDENCY

ADMINISTRATION REPORT

FOR THE YEAR 1945-46

PART II—IRRIGATION

Chapter I.

I. Personnel.

Sri Rao Bahadur A. R. Venkata Acharya took charge as the Chief Engineer for Irrigation on 10th October 1945, from Sri Diwan Bahadur N. Govindarajan Ayyangar and continued as Chief Engineer throughout the rest of the year.

Sri A. R. Venkataraman who continued as the first Deputy Chief Engineer proceeded on leave on the 18th June 1945 and rejoined duty as the first Deputy on the 19th July 1945 and continued thereafter till the end of the year.

Sri R. Srinivasa Acharya continued throughout the year as the second Deputy Chief Engineer for Irrigation. He also held additional charge as first Deputy between 18th June 1945 and 19th July 1945 when the first Deputy was on leave.

The post of a third Deputy Chief Engineer was created during the year and Sri Rao Sahib A. Venkata Ramanan took charge of the post on the 2nd February 1946.

The post of a Special Chief Engineer was also created during the year to deal with the Tungabhadra and the Ramapadasagar Projects. Sri Diwan Bahadur N. Govindaraja Ayyangar on relief as the Chief Engineer for Irrigation was appointed to the post.

II. Salient Features of the Administration—Public Works (Irrigation) for the year 1946.

The summary in this chapter is as usual intended to bring the general information up to date to the end of the year 1946.

I. *Cauvery Delta System.*—(i) As the level of water in the Mettur reservoir was very low, viz., 6·40 feet at the end of May 1946, the opening of the reservoir had to be postponed to the 28th of June by which time the level had risen to 52·70 feet. Water reached the delta on 1st July 1946 about a month later than usual. Even then the storage was low and it was possible to draw only a very restricted supply. It was not till 10th July 1946 that the reservoir showed definite signs of filling up and permitted the restoration of the normal scale of supply. The reservoir then filled up rapidly and after an interval of 3 years, it started surplusing on the 15th August 1946. Since then there has been a steady and plentiful flow permitting liberal issues being drawn into the river. This should have to a large extent counteracted the effect of the late opening of the season. The north-east monsoon has also been favourable and the delta has had heavy rains. The standing crops are good and a normal harvest is expected.

(ii) There was a breach in the right bank of the Grand Anicut Canal at R.D. 8/70 on 11th August. It was closed expeditiously and irrigation restored after an interruption lasting only four days. As there were local rains during the period the crops did not suffer any significant damage.

(iii) Twelve key schemes for drainage improvements in the delta at a cost of Rs. 29·3 lakhs were sanctioned during the year. Of these, the schemes pertaining to the Maraka-korayar, Kilathangiar, Madavanar and Ayyavaiyanar were taken up for execution and were in progress.

(iv) In pursuance of the revised policy of the Government to take up silt clearance of channels—irrigation and supply—at Government cost irrespective of the fact whether they were done by kudimaramath or not, 19 tank supply channels and 80 irrigation channels in the Tanjore Circle were silt-cleared at a cost of over Rs. 86,000.

(v) Duty experiments were continued at the Pattukkottai and Aduthurai Agricultural Research Stations.

II. *Godavari Delta System.*—(i) The area thrown open for second crop cultivation during the year was 71,170 acres in the Godavari Eastern Delta ; this included an area of 9,598 acres thrown open as additional area to make up for the loss suffered during the cyclone and tidal wave of October 1945. However, an extent of 55,527 acres alone was actually cultivated, as the ryots apprehended inadequacy of supplies in March and April 1946. In the Central Delta an extent of 58,000 acres was cultivated against 70,000 acres scheduled under second crop. The total area thrown open for second crop in the West Delta was 168,000 acres comprising 131,000 according to the localization scheme, 25,000 acres of additional area to compensate the loss in the cyclone and 12,000 acres under new projects. The yield in all the deltas was fair and generally satisfactory.

(ii) During the transplantation period of the 1st crop season, supply was normal in June, but the position became critical in July owing to lack of local rain. The critical period was tided over by equitable distribution of the available supplies with the utmost difficulty. Freshes received late in July relieved the anxiety and facilitated transplantation and supply in the river was generally satisfactory. The subsequent heavy rains damaged the crops in the Eastern and Western Deltas to some extent. However, the yield in both the deltas is fair and is expected to be normal. In the Central Delta, the ryots who raised short-term paddy were allowed back-water transplanation and an area of 22,000 acres thus raised had a very good harvest. A similar bumper harvest of short-term paddy was made in the Western Delta also.

(iii) A special subdivision sanctioned for the scientific investigation of drains and remodelling of channels began to function in the Eastern Delta during the year. Investigation in the Central Delta will be taken up by the subdivision later.

(iv) The construction of the collapsed arches of the Gannavaram aqueduct and pile-driving in front and rear of its aprons as a protective measure were completed. The remodelling of the remaining vents of the aqueduct and widening the bridge over it was taken up by a special division formed in November. The work is estimated to cost Rs. 28,00,000.

III. *Kistna Delta System.*—The freshes in the Kistna river were received by 20th May and the maximum flood-level reached was 16·5 feet over the crest of the anicut against 13·0 feet during the last year and the maximum ever recorded of 23·5 feet. Supply conditions were satisfactory in the beginning, but transplantation had to be commenced late owing to the late reopening of canals. The heavy rains and wind during November 1946 caused slight damage to crops. A few breaches occurred in the canals but they were immediately closed, and no appreciable damage was allowed to be caused to standing crops. About 6,500 acres were allowed 2nd crop to make up for the damage sustained by them during the cyclone and tidal wave of last year. Temporary irrigation facilities were granted to Government porambokes, assessed waste lands, etc., in pursuance of the Grow More Food drive ; about 9,500 acres were thus cultivated in the Kistna Western Delta.

IV. *Kistna East Bank Canal Extension Scheme.*—The canal was reopened on the 25th May and transplantation was completed by the middle of August. Crops were fair to good and no submersion worth-mentioning due to rains has occurred. A number of small areas were allowed wet cultivation in addition by sanctioning temporary pipes.

V. *Periyar System.*—Due to the partial failure of the north-east monsoon last year, the long or kalam crop was transplanted late and the reservoir had to be kept open for eleven days beyond the normal closing date of 1st March for saving the standing crops. Consequently, the reservoir had to be opened late by twenty days ;

still supply to the single crop zone below Kalandri regulator was issued on the usual date, namely, 15th August 1946. The intensity of the north-east monsoon this year is expected to bring the standing crops to maturity in time and fill the lake. Water-supply to the Madura town was given as usual owing to the drought in the months of July and August.

VI. *Ramapadasagar Project.*—The detailed investigation of the project was in progress. Explanatory borings and percolation experiments pertaining to coffer dam works in foundations at the dam-site, waterspread survey, taking of checks and block levels along the left canal alignment down to Vizagapatam Harbour were all being attended to by special staff. A technical commission was appointed by the Government of India in respect of the sharing of waters by the Madras and the Hyderabad Governments. Sri Diwan Bahadur N. Govindaraja Iyengar, Chief Engineer (Special) returned from his tour of the United States of America and the United Kingdom in March 1946 after studying the methods of design and construction of large dams and collecting valuable data on deep foundations for dams. Messrs. J. L. Savage and Karl Terzaghi, two eminent American Engineers who are the Consulting Engineers for the project, visited the dam-site and submitted their report regarding the coffer dam and dam-designs.

A Designs and Tests Division was formed during the year with Dr. K. L. Rao as its head in connexion with finalizing the designs for the Tungabhadra and Ramapadasagar dams under the direct guidance and supervision of the Chief Engineer (Special).

VII. *Tungabhadra Project.*—(i) To ensure quick progress in the execution of this project, another circle called the Headworks Circle was sanctioned by Government and it was formed in April 1946 at Hospet. Construction of quarters for the officers and staff along the low-level canal, and at the dam-site were in progress. Necessary preliminaries were being attended to for expediting the timely completion of the water-supply, drainage and electric-supply arrangements in the camp area. Formation of the road from Hospet to the dam-site was in progress. The designs for under-tunnel and bridges were settled as also contracts for a few of them. Preparation of plans and estimates for the Hagari aqueduct and main canal were in progress. Owing to the failure of the monsoon last year, expansion relief works were commenced in January 1946 and famine labour was engaged in excavating the canal in five reaches.

(ii) The technical aspects of the dam construction were under consideration by the Chief Engineers of the Madras and Hyderabad Governments. Orders for machinery available in local Army Dumps were also placed. Collection of materials like cement, steel, etc., were also being attended to.

VIII. *Contour Bunding.*—The investigation of the scheme for dry farming and contour bunding in the famine-affected areas of the Ceded Districts was completed. An estimate for Rs. 2·94 lakhs for contour-bunding on an area of about 5,500 acres near Guntakal as an experimental measure in the first instance, was submitted to Government through the Board of Revenue during the year. Another scheme for contour-bunding about 2,500 acres near Hagari was also formulated by the Director of Agriculture. Orders of Government on both the schemes were awaited.

IX. *Grow More Food Schemes.*—(i) The second target of 15,000 acres proposed for reclamation under the Cauvery-Mettur Project was completed during the year. Extension of irrigation beyond Narasinga Cauvery was in an advanced stage of execution. Further ten new schemes at an estimated cost of Rs. 9·85 lakhs designed to irrigate an approximate ayacut of about 9,987 acres were also sanctioned during the year—vide list appended.

(ii) Since the inauguration of the Grow More Food Campaign 89 schemes including major and minor ones were sanctioned at a cost of Rs. 131·41 lakhs for irrigating about 154,000 acres including lands under Cauvery-Mettur Project Of these, 62 schemes had been completed up to date.

X. *Research.*—The Irrigation Research Division at Poondi was provided with a research laboratory. Studies relating to Irrigation, Hydraulics and Soil Mechanics

and problems relating to construction of dams with special reference to the Tungabhadra and the Ramapadasagar dams were carried out. Models both on tank weirs and spillways were also constructed and studied. Staunching of canals and other such problems were also done.

XI. *Post-war Reconstruction Schemes.*—Twelve major irrigation schemes including the Tungabhadra, Ramapadasagar, Gandikota and Vaigai Reservoir projects and improvements to the Godavari, the Kistna and the Cauvery Deltas were treated as Post-war Irrigation Schemes. Of these, the Tungabhadra Project the improvements to Romperu drain in the Godavari Delta and drainage improvements to the Cauvery Delta were sanctioned and were under execution, while the others were under investigation. Schemes for the improvements of inland waterways were also formulated irrespective of return, as cheap transport of essential commodities like food-stuffs, fuel and fodder are more important, these days. Sixteen such schemes were proposed relating to the Buckingham Canal, Vedaranyam Canal and the West Coast Canals at an approximate total cost of Rs. 52·95 lakhs. These schemes were under examination.

XII. *General.*—The south-west monsoon was very poor in the Cauvery and Periyar catchment areas, but the north-east monsoon which set in late in the year was heavy and vigorous. The heavy rains breached many tanks and supply channels in South Arcot, Salem, Nellore, Chingleput and Ceded Districts. These were being attended to.

List of Grow More Food Schemes sanctioned in the calendar year 1946.

	Approximate ayacut to be benefited.	Estimated cost.
	ACS.	RS.
1 Extending irrigation under Tenda No. 2 channel—Komaragiripatnam scheme	874	85,000
2 Providing irrigation facilities to dry lands in Undrajavaram village .	883	59,500
3 Restoring the Gurappa Cheruvu and excavating a channel from Nallavagu ..	150	49,750
4 Excavating new Sitampeta channel	5,030	3,94,000
5 Providing irrigation facilities to Mellamatalanka, etc., villages . ..	540	16,100
6 Providing irrigation facilities to lands in Sooliakottai, etc., villages	800	53,500
7 Providing irrigation facilities in Vakkur and Kampiampaliyur villages	800	39,000
8 Restoration of the Kottavadi tank	2[illegible]5	1,95,000
9 Extension of the Hospital channel	482	62,900
10 Excavating a channel to Rundravaram and Chigurukota villages	633	30,000
Total ..	9,9[illegible]7	9,8[illegible],750

Chapter II.

A Bird's-eye View of Irrigation in Madras Presidency.

A brief summary of the irrigation systems in the Presidency is given below.

In the Circars, we first have in the extreme north of the Presidency, the Bahuda River and Padmapuramgedda irrigating an extent of 6,000 acres ; next the Chicacole Minor Rivers system comprising a number of channels taking off from the rivers the Vamsadhara and the Langulya and also the hill stream Garibulagedda and irrigating about 67,000 acres. The Nagavalli system irrigates the next largest area in Vizagapatam district. By means of a regulator across the river at Thotapalli sufficient water is diverted through a main canal and its branch channels to irrigate roughly 28,000 acres. The project was completed in 1909 and has been of great benefit to the ryots. In the southern portion of the Vizagapatam district, there are again a number of channels taking off from the Varaha and the Sarada rivers. The former system irrigates about 18,000 acres and the latter 9,000 acres.

The next is the Godavari Delta. To those who have not the local knowledge the fact that the value of the crops now grown annually in this delta is several crores will convey a very meagre idea of the benefits of irrigation. The Godavari ryots have recently erected at Dowlaishwaram, Bobberlanka and Chettipetta statues to commemorate the memory of Sir Arthur Cotton, the originator of the scheme, and by doing so have shown their appreciation of what he has done for the district by his monumental works for securing copious supply of precious water to their lands. Roughly one and half million acres of both first and second crops are irrigated by the net work of canals and channels thousands of miles long; the value of the crops grown annually exceeds nine crores. The canals have been designed not only for irrigation but also for navigation. Sixty locks have been built and more are being considered. About 400 miles of canals are navigable for boats up to 90 tons capacity and the major part of the exports and imports from and to the delta is conveyed by boat. That this connected system of navigation has helped a great deal to the prosperity of the Godavari and the Kistna ryots will be appreciated when it is stated that the cost of transport to Madras by water is only one-eighth to one-tenth of the cost of transport by cart or other means. For instance, the cost of transport per bag of rice from the Cocanada port to Rajahmundry is 6 pies whereas that from Negapatam port to Tanjore is four annas even though the distance to be covered is the same in both the cases; this is because water transport is available in the former and not in the latter case. By means of the Godavari and Kistna canals and Buckingham Canal, one can go by boat from Madras to Cocanada, a distance of 400 miles, and from Rajahmundry one can continue the journey by boat beyond Bhadrachalam right up to the Central Provinces, a further distance of 188 miles.

The next is the Kistna Delta. Just over a century ago, famines were recurrent in these parts and the appalling conditions that were then prevailing induced the Government of the day to push forward the Godavari and Kistna projects. At Bezwada in the Kistna district, an anicut was built across the Kistna in 1855 (shortly after the completion of the anicut at Dowlaishwaram). The anicut diverts water through a net work of canals and channels to irrigate over 9 lakhs acres in Kistna and Guntur districts. The Kistna canals are also navigable and the greater part of the trade of the deltaic portions of the two districts is carried on by boats. Our Godavari and Kistna projects are probably the most beneficial and most successful irrigation schemes ever executed by any Government in the world. They have improved the condition of the people of the districts beyond the highest expectations of the originator, while the return on the capital invested in building them has sufficed not only to maintain and keep the systems up to date but has provided a continuous source of revenue which has enabled Government to initiate other projects, far less attractive financially in less favoured districts.

It should be stated here that we have till now utilized only six per cent of the annual flow of the Godavari and seven per cent of the annual flow of the Kistna and we are still a great way from utilizing the large quantity of water that flows to the sea.

Leaving the rich districts of Guntur and Kistna and coming down to Nellore, we meet a dry and barren district but advantage has been taken of such facilities as exist for extending irrigation. Near the sea coast, the rainfall is generally favourable, and with the addition of some extra water, supplied by means of irrigation, excellent crops are grown. Nellore rice is famous for its quality. Two anicuts across the Pennar divert water to the Kanigiri and the Survapalli reservoirs and about 165,000 acres of paddy are cultivated under them annually. Further inland, the Mopad Reservoir built in 1921 as a famine-protective work has fulfilled the purpose for which it was intended.

Leaving Nellore, we shall divert from our course for a few moments and strike west and north-west to have a glimpse at Cuddapah, Kurnool, Bellary and Anantapur districts. These districts known as " Rayalaseema " are in the famine zone and are periodically liable to failure of rain and consequent drought. Irrigation in Rayalaseema is by the very nature of the country difficult. Rainfall with its consequential

river and stream flow is the first requirement for a successful irrigation scheme and when rain fails in the locality we propose to benefit, we must look to some external source, for example, a river whose main catchment area is outside the districts liable to failure for supply. Irrigation schemes in Rayalaseema depending on local rains must, generally speaking, be of doubtful utility. Proposals for tapping the supplies from the perennial Thungabhadra have been under examination, for a pretty long time and it was only recently that an agreement was arrived at between the Hyderabad and Madras Governments in the matter of sharing the water for irrigation purposes. The reservoir to be formed by constructing a dam at Mallapuram near Hospet is designed to have a capacity of about 110 T.M. cubic feet and irrigate over one million acres in the Madras and nearly an equal extent in the Hyderabad territories. The cost is estimated at about 10 crores of rupees. The Government have since sanctioned the execution of the scheme and posted special staff therefor. It is hoped that the spectre of famine in the Rayalaseema will vanish with the completion of the project in spite of the general deficiency of rainfall and the heavy black cotton soils in these parts. The Kurnool-Cuddapah canal which flows through a black cotton belt has not been successful though in years of deficient rainfall its water is eagerly sought after by the ryots for their crops.

South from Nellore we come to Chingleput where there are no major irrigation schemes, but about 450,000 acres are irrigated by as many as 653 tanks. The district is peculiarly suited to tank irrigation; rainfall is generally favourable and the topography of the district favours this method of irrigation.

In South Arcot district also there is a large number of tanks which irrigate over 300,000 acres. In addition, advantage has been taken of the fact that the district is traversed by two fairly large rivers, the Penniar and the Vellar. An anicut across the Penniar at Tirukkoyilur diverts sufficient water for about 30,000 acres. Regulators combined with road bridges have been built across the Vellar at Toludur and the Shatiatope; the former diverts water to Willingdon reservoir for over 25,000 acres (the a acut is still expanding) and the latter diverts water through the Vellar Rajan channel and its branches to irrigate about 34,000 acres between Cuddalore and Porto Novo. Coleroon water is diverted at the Lower Anicut to irrigate about 118,000 acres in Chidambaram taluk. Besides, there are two anicuts at Vriddhachalam and Mehmattur across Manimutha nadhi, a branch of the Vellar, which irrigate about 10,000 and 5,000 acres respectively.

Deviating from the southerly course for a few moments, we meet the North Arcot, Salem and Coimbatore districts. The Palar river which rises in Mysore is the main feeder for North Arcot. Water is diverted through a series of canals and channels of the Palar anicut, 15 miles from Vellore, to irrigate over 100,000 acres. The district had many old tanks which have been retained and which now form an essential part of the system. Flow in the Palar is intermittent and in the old tanks the flood flow of the river is stored which without tanks would be wasted over the anicut. The Poiney anicut in the same district irrigates over 36,000 acres. The Cheyyar anicut also in the same district irrigates over 37,000 acres.

The Salem district is particularly not favoured by nature. The largest irrigation scheme in it is Barur. An anicut across the Penniar diverts water to the Barur reservoir which irrigates over 7,000 acres. The district depends mainly on tanks many of which get a supply over and above that contributed by their own catchment through channels taking off from anicuts built across adjacent streams. Though Mettur reservoir is in the district it has not been possible owing to very unfavourable conditions to devise any scheme to benefit Salem from this source. The Cauvery channel in Namakkal taluk irrigates 7,000 acres of very rich and fertile lands. Proposals are however under consideration to provide irrigation for about 40,000 acres of lands in the district by pumping from the river Cauvery.

The Coimbatore district depends mainly on the Bhavani which irrigates at present a large area of paddy. There are in addition several tanks and the waters of the Chitrachavadi, the Noyel and the Amaravathi are also utilized to the greatest extent possible by means of anicuts.

Continuing the southerly route from South Arcot, Tanjore is reached. Irrigation of about 7·8 lakhs of acres has been practised in Tanjore for centuries and with the modern works recently built, the ayacut now is about 9 lakhs of acres. The

Cauvery-Mettur Project completed in 1934 is intended to ensure supply to the new delta as well as to extend irrigation by 301,000 acres in Pattukkottai, Mannargudi and Arantangi taluks. Tanjore has had a hoary tradition of irrigation works dating back to some 2,000 years. The benefits of Mettur reservoir to landholders in Tanjore delta are manifold. The reservoir acts as a flood moderator and protects the Tanjore ryots from the ravages of the Cauvery floods in the south-west monsoon to which they were subject hitherto. It secures to the ryots the benefits of early supplies in June and ensures steady and regular flow throughout the irrigation season.

The Trichinopoly district, like Tanjore, depends mainly on the Cau ery for its irrigation and prosperity. Many channels take off directly from the river to irrigate about 135,000 acres of fertile valuable lands.

Madura benefits mainly from the Periyar project. A dam built across the Periyar river in Travancore holds up water in the Periyar lake and a tunnel 5,700 feet long, conveys this water to the Vaigai valley and thence to Madura. One hundred and thirty-four thousand acres roughly are irrigated by the Periyar project. The difference that this scheme has made to the prosperity of Madura district is enormous. The chief merit lies in its sociological effects on the population of the district. The Kallars and Maravars whose habits of life were none too helpful to the society have now settled down in peace and prosperity to tilling land and adding to the wealth of the country.

The Tinnevelly district, which adjoins Madura, depends mainly on the Tambraparni river across which several anicuts have been built to irrigate about 75,000 acres. The irrigated portion of Tinnevelly is noted for its fertility.

In Tinnevelly, the Papanasam hydro-electric scheme involving a dam 170 feet high on the Tambraparni has been completed. Though the reservoir is formed mainly for power, it will benefit irrigation also.

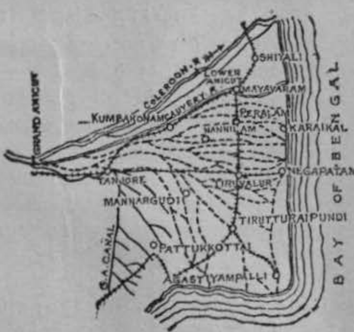
Tank irrigation is of the greatest importance in this presidency where 2,670,000 acres are irrigated under tanks. Similarly wells are another important source of supplies and are responsible for irrigation of about 1,540,000 acres. Attempts are being made to extend well irrigation by means of electric pumps in suitable areas.

Chapter III.

Brief Description of Important Irrigation and Navigation Works.

The Cauvery Delta System.—The Cauvery rises in Coorg and flows for a considerable distance over the Mysore plateau. It then drops into the plains of Madras at the Hogainkal or Megadatu falls. The chief tributaries of the river are the Hemavathi, Lakshmanathirtha and Kabbini in Mysore and the Bhavani (rising on the Nilgiris) in Madras. The Cauvery is 5 0 miles long and drains 31,000 square miles. The river benefits by the south-west and north-east monsoons and irrigates a large area in Mysore before it enters Madras. There are two big reservoirs on the river—the Krishnarajasagara near Mysore and the Stanley reservoir near Salem. Hydro-electric power is developed at Sivasamudram and at Stanley Dam at Mettur, at the former by utilizing the natural fall of the river and at the latter by utilizing the head due to storage at the dam.

Irrigation in the Cauvery Delta System is of great antiquity dating back to the ancient Hindu Kings of Tanjore—said to be about the second century B.C. The delta begins at the head of the Srirangam Island where the river divides into two, the right arm called the Cauvery carrying irrigation supplies and the left arm, the Coleroon being the flood carrier. There is a barrage with lift shutters—the Upper anicut—across the Coleroon at its head to divert requisite supplies to the Cauvery over the Cauvery dam.



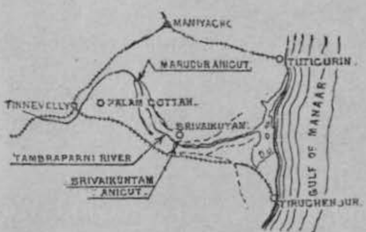
About 20 miles below the Cauvery dam is the Grand Anicut, an ancient masonry anicut built across a by-pass from the Cauvery into the Coleroon below the Srirangam Island. This anicut, intended to hold up and divert the normal flow of the Cauvery to the rivers supplying Tanjore delta, was converted into a regulator with lift shutters to permit effective disposal of surplus from the Cauvery and got passing supplies to the Lower Coleroon Anicut System.

At the Grand Anicut, the Cauvery branches into the Cauvery and the Vennar, which in turn throw off a number of branches and irrigate the fertile lands of the Tanjore delta, the well-known "Granary of South India." The new Grand Anicut canal of the Cauvery-Mettur Project also takes off at this point.

The delta is long, fertile and level, some 2,000 square miles in area with a seaboard over a 100 miles long extending from Point Calimere to the south as far north as Porto Novo and some distance beyond to Cuddalore. It is served with a net work of rivers and channels, supplies into which are controlled by several regulators. Many of the smaller rivers of the delta function both as irrigation and drainage channels.

The area irrigated under the Cauvery Delta System alone is about 870,000 acres (first crop) and just over a million acres including the second crop. The value of the crops yielded is about Rs. 9·82 crores Over 87 lakhs have been spent on improvements since the system was taken over from the Tanjore Kings. The system yields a return of about 14 per cent on the capital outlay after giving credit for about 38 lakhs of rupees towards old revenue.

Srivaikuntam Anicut System.—The Srivaikuntam anicut is the last of the Anicuts across the Tambraparni in Tinnevelly district. Two channels take off at the anicut. On the left is the North Main channel feeding a series of tanks and finally emptying into the Morumpallam tank. On the right side, the South Main channel takes off and supplies the large Kadamba tank and a series of tanks below it and irrigation under it extends as far as Tiruchendur with its famous temple on the seashore. The system irrigates about 24,700 acres. The capital expenditure was about Rs. 18 lakhs and the return is 4 per cent on the outlay.



The Godavari Delta System.—The Godavari rises in the Western Ghauts within 50 miles of the Arabian sea and flows across the Peninsula for 900 miles before it falls into the Bay of Bengal. Its chief tributaries are the Manjira from Hyderabad and the Pranahita made up of three smaller streams from the Central Provinces, the Indravathi and the Sabari. Shortly after the Sabari joins it, the Godavari now deep and narrow winds its way through the spurts of the Eastern Ghauts and for 2 miles it flows through a picturesque gorge clothed with luxuriant tropical vegetation. Some distance below, it leaves the last ranges of the Ghauts, enters the plains at Polavaram and flows onward as a broad and shallow river until some distance below Rajahmundry where it divides into two main branches, the Gautami and the Vasishta Godavari rivers. Between the two arms lies the central delta, while the eastern and western deltas lie to the east and west of the two arms respectively. The two arms split up into branches, as they approach the sea, dividing the central delta into a number of islands. The river drains about 115,000 square miles and carries as much as 1½ million cubic feet per second in very high floods.



Prior to 1840, the Godavari district was frequently the scene of bad famines. In 1832–33 a terrible famine ravaged the district and the calamitous famine of 1840–4 followed after some more bad years. The recurring famines, the decreasing population and the dwindling revenue spurred the Government to action and Major Cotton (later Sir Arthur Cotton), who had just then completed great improvements in Tanjore, proposed the construction of an anicut across the Godavari at Dowlaishwaram with three canals, one for each of three deltas. The works were sanctioned almost immediately and carried out expeditiously under his guidance. It is to the genius, keenness and intrepidity of Sir Arthur Cotton, that Madras owes these monumental works unprecedented both as to type and magnitude and which have proved to be a veritable gold mine.

The Godavari anicut system consists of an anicut and three main canals irrigating three deltas. The anicut is in four sections, linking the islands in the broad river, the Dowlaishwaram section 4,839 feet long, the Ralli section 2,859 feet long, the Maddur section 1,550 feet long, and the Vazeswaram section 2,601 feet long. It was subsequently found necessary to raise the anicut slightly and fit up falling shutters, 2 feet high on the crest. In 1935, the two feet shutters were replaced by three feet shutters. The shutters which fall automatically during floods are lifted as the flood subsides by means of power-operated ploughs, so as to maintain the requisite water level in the river.

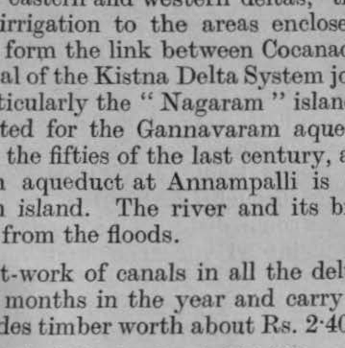
The head works of the canals consist of a head sluice, and under sluice and a head lock for each of the three deltas. The eastern delta is about 450 square miles, the central delta 500 square miles, while the western delta about 1,000 square miles in extent stretches down to the Collair lake.

In the eastern and western deltas, the Samalkota and Ellore canals define the limits of irrigation to the areas enclosed between them and the river Godavari. They also form the link between Cocanada Port and Ellore town where the (Kistna) Ellore canal of the Kistna Delta System joins the (Godavari) Ellore canal. The central delta, particularly the "Nagaram" island, is the "Garden of the Godavari district" and is noted for the Gannavaram aqueduct which was completed in about eight months in the fifties of the last century, a remarkable feat due to Captain Orr. The Polavaram aqueduct at Annampalli is a similar recent construction to irrigate Polavaram island. The river and its branches are banked throughout to protect the deltas from the floods.

The net-work of canals in all the deltas are navigable throughout their length for eleven months in the year and carry annually cargo valued at nearly Rs. 24·71 crores besides timber worth about Rs. 2·40 crores and passengers over a million a year.

The canals irrigate about 820,000 acres but the total area irrigated during the year including the second-crop area is over 1 million acres. The value of crops grown is Rs. 11·77 crores. The capital outlay on the system is about Rs. 2·09 crores and the return is 12 per cent.

Pennar River Canals System.—The system consists of two anicuts, one at Sangam and the other at Nellore. Two canals take off at the Sangam anicut and the left, one to feed the Duvvur tank and the other the large Kanigiri tank, one of the largest tanks in the Circars. Another channel taking off at right side of the anicut feeds the Nellore tank. At the Nellore anicut about 20 miles down-stream of Sangam, a canal takes off on the right and feeds a number of tanks, the largest of which is the Sarvapalli tank. The Sangam anicut has recently been raised by 1 foot and with Nellore anicut system irrigates about 146,600 acres; the capital expenditure is Rs. 71 lakhs and the return is 7 per cent.



The Shatiatope Anicut System.—The system is a combined tank and canal system served by the Vellar Rajan channel taking off from the Shatiatope anicut across the Vellar. The old anicut was converted into a bridge and regulator fitted with lift shutters about 1906. The system irrigates about 32,700 acres in South Arcot district and irrigation extends almost as far east as Cuddalore. The Perumal tank is one of the largest tanks and is the terminal tank of the system. The capital expenditure on the system is about Rs. 11 lakhs and the return is about 10 *per cent.*

The Periyar System.—The main feature of the Periyar system is the diversion across the Peninsula into the Bay of Bengal' of a large river which nature had ordained should flow into the Arabian Sea. A huge dam across an inaccessible gorge in Travancore, about 3,000 feet above sea level, in malarial ridden jungle, forms a picturesque lake in the hills with a useful capacity of about 9,800 million cubic feet. The project is due to the genius of Colonel Pennycuick. The dam is of concrete with a masonry facing on the lake side about 170 feet high above river bed at the deepest point. A tunnel 5,700 feet long has been bored through the ridge on the east to carry the waters of the lake to the plains of Madura. The water flows into the Suruliyar, tributary of the Vaigai, and after irrigating about 12,700 acres in the Suruliyar Valley, is again picked up at the Peranai regulator across Vaigai about 80 miles downstream of the tunnel and diverted into the Periyar main canal about 35 miles long. The system irrigates about 126,000 acres in Madura district. The capital expenditure on the system is about 108 lakhs and the return is about 6 per cent.



The Kistna Delta System.—The Kistna rises in the Western Ghauts near Mahabaleswar, some 4,000 feet above the sea level and runs southwards through the Bombay Presidency for some distance before it turns east into Hyderabad and receives the Bhima. Further down the Tungabhadra joins it and from here the river is for a considerable distance the boundary between Madras and Hyderabad. The last important tributary to join is the Musi. The river after flowing through a narrow gorge in the Nallamalais enters the plains of the Coromandal coast studded with hills. The last of the three *hills* is at Bezwada where the river flows between two of them hardly 6 furlongs apart. Stretching away on both sides of the river beyond Bezwada lie the two sections of the delta, the eastern delta lying on the left side and the western delta lying on the right. For 40 miles below the river runs in a single stream. It then throws out the Puligedda branch. Between this and the main river lies the Divi island. The main river then flows for 15 miles and splits into three branches before it empties into the sea. The river drains 97,000 square miles and its flood discharge is about a million cubic feet per second.



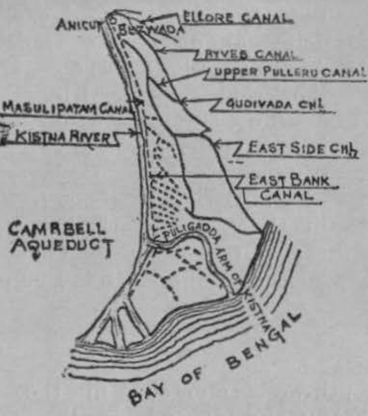
The history of the Kistna anicut follows almost the same course as that of the Godavari. Sir Arthur Cotton, who built the Godavari anicut, was again responsible for the anicut at Bezwada with its two canals, supplying the two sections of the delta on either bank of the river.

The anicut is about 6 furlongs in length ; its crest was raised at a later date by one foot and fitted with three feet falling shutters to improve the supplies to the delta. In 1935 even this was found insufficient and 6 feet falling shutters were substituted.

The shutters are tripped by hydraulic pressure to pass floods and a steam plough is used to lift them up as the flood subsides. The head works of each canal consist of head and undersluice and a head lock.

The eastern delta has an area of about 1,160 square miles and stretches as far north as the Collair. The western delta is about 950 square miles and extends to the south as far as Pedda Ganjam. The Kistna-Ellore canal in the eastern delta connects the Godavari-Ellore canal in the north and the Commamur canal of the western delta joins the Buckingham canal in the south. These contour canals and the interior canals form a net-work of irrigation and navigation canals affording means of irrigation and transport for the two deltas. The Divi island was irrigated with water pumped from the river by Diesel engine driven pumps. Pumping from the river was the practice till 1935 when the Campbell aqueduct was built at Puligedda to carry the Kistna East Bank canal across the river to Divi. This canal now irrigates by direct flow the entire ayacut in the Divi island.

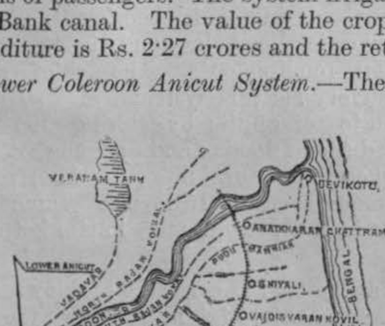
The Kistna East Bank canal takes off at about mile 4/0 of the Masulipatam canal. The canal is navigable and runs alongside the river for a considerable distance before it crosses the Puligedda arm of the Kistna river by the Campbell aqueduct. The aqueduct is the longest reinforced concrete aqueduct bridge in India and carries a roadway 16 feet wide and a footpath 4 feet wide. The aqueduct is submersible during the high floods. The capital expenditure on the canal is Rs. 58 lakhs and the return is 7·76 per cent.



The river and its arms forming the Divi island are banked to protect the delta from floods.

The canals are navigable for about 10 months in the year and carry annually cargo valued at about Rs. 16·35 crores, timber worth about Rs. 44·59 lakhs and over 2 lakhs of passengers. The system irrigates about 930,000 acres excluding the Kistna East Bank canal. The value of the crops grown is about Rs. 12 crores. The capital expenditure is Rs. 2·27 crores and the return is 15·67 per cent.

Lower Coleroon Anicut System.—The lower anicut across the Coleroon was built about 1840 by Sir Arthur Cotton to ensure supply to the areas originally irrigated by river channels. The old works were substantially improved in 1906. The weir was converted into a regulator of 70 vents fitted with lift shutters 33 feet 4 inches span and 8 feet high. The Vadavar and North Rajan channels taking off on the left side irrigate lands in the Chidambaram taluk of the South Arcot district. The Kumikimanniyar and South Rajan channels take off on the right and irrigate lands in the Shiyali taluk of the Tanjore district. The Vadavar is a contour canal supplying the large Veeranam tank, which also supplements supplies in the river valleys through a sluice at its northern end. The system irrigates about 118,700 acres. The capital expenditure is Rs. 30 lakhs and the return is 10 per cent.



Willingdon Reservoir.—Originally known as the Toludur Project is a comparatively new work in South Arcot district opened in 1923. There is a bridge and regulator fitted with lift shutters across the Vellar at Toludur from which a canal three and a half miles long takes off and feeds the reservoir which has a capacity of about 2,400 million cubic feet. The bridge carries the Great Southern Trunk Road from Madras to Trichinopoly. From the reservoir a channel takes off and branches into the high and low level channels a short distance below the head. These are designed to irrigate about 25,000 acres. Irrigation is not yet fully developed and the system now irrigates about 20,000 acres. The capital expenditure on the system is about Rs. 26 lakhs and the return is 3·52 per cent.



Polavaram Island System.—The system consists of a canal taking off the Bank Canal of the Godavar. Central delta about half a mile above Annampalli lock. The canal crosses the Vriddha Goutami by a masonry aqueduct and irrigates the Polavaram island enclosed by the two branches of the Goutami Godavari. The system irrigates about 15,200 acres in East Godavari district. The capital expenditure is about Rs. 17 lakhs and the return is 1·93 per cent.



Cauvery-Mettur System.—While the south-west monsoon in the hills is fairly heavy and dependable, the north-east monsoon supplies to the Cauvery are irregular. The caprices of the north-east monsoon have frequently affected cultivation in Tanjore. Moreover, there is usually a break of about six weeks between the two monsoons during which period the supply in the river is very low and insufficient for irrigation requirements. The chief aim of the Cauvery-Mettur system is to remedy this state of affairs by storing the excess water during floods and passing it down later when the natural flow in the river falls below requirements. It is also intended to irrigate 301,000 acres of new land chiefly in the Mannargudi, Pattukkottai and Arantangi taluks of the Tanjore district.



The system consists of a large reservoir at Mettur known as the Stanley reservoir and a canal known as the Grand Anicut canal in Tanjore taking off above the Grand Anicut.

The Stanley reservoir has a waterspread 60 square miles in area and holds 93,500 million cubic feet of water when full. The lake is formed by a masonry dam across the valley of the Cauvery. It is 5,300 feet long and 214 feet high at the deepest point. It is almost the biggest dam in the world and costs Rs. 4·8 crores. There are two sets of sluices in the dam, the high and low level sluices with sills at +720 and + 670 while the F.R.L. is + 790 and the M.W.L. is 796·00. The river floods are surplussed over an escape at the left flank fitted with lift shutters 60 feet long and 20 feet high and an emergency escape at the right flank. The design however provides for raising these by 10 feet high if it becomes necessary.

The sluices and the surplus shutters are worked by electric power but it is possible to work any of them by hand if required. The dam also incorporates four sets of cast iron lined sluices 8 feet 6 inches diameter. These enable supplies to be drawn for the development of hydro-electric power below the dam and a hydro-electric power station has been built below the dam and is in operation since 1937. Irrigation supplies for the new area under the reservoir are passed into the river below the dam and picked up at the Grand Anicut about 120 miles downstream. The new canal called the Grand Anicut canal is a contour canal about 70 miles long has costed about Rs. 200 lakhs. It runs through Tanjore town, after passing which it throws out the large Kalianodai and Rajamadam branch canals. Down below there is a net work of branch channels and the system irrigates lands as far south as the Narasingha Cauvery.

The system is under development. It now irrigates about 232,000 acres. The capital outlay is Rs. 6·5 crores and the present rate of return on capital is 1·75 per cent.

Kattalai System.—The South Bank canal was excavated to replace the four old korambu channels—Marudur nattu voikal, Mahadanapuram channel, Nangam channel and Uyyakondan channel taking off from the right bank of the Cauvery in Trichinopoly district, as irrigation under them was troublesome and uneconomical. Because the river-bed at the head of the South Bank canal had been badly scoured by the 1924 floods a bed regulator was constructed there. Five furlongs below its head, the canal divided into the High Level channel and the South Bank channel. The system irrigates about 50,400 acres. The capital expenditure was about Rs. 41 lakhs and return is 3·30 per cent.



Kurnool-Cuddapah Canal.—The Kurnool-Cuddapah canal takes off from the Thungabhadra from an anicut at Sunkesula about 15 miles upstream of Kurnool. The anicut and canal were constructed by the Madras Irrigation and Canal Company, Limited, incorporated in England in 1858 with a guarantee of 5 per cent interest on outlay. The work was completed about 1870 and was handed over to Government on payment of Rs. 3·02 crores. The canal provided for irrigation of 76,500 acres in Kurnool and Cuddapah districts but the irrigated area varies within wide limits from year to year. The canal runs parallel to the river for about 50 miles when it takes a turn southwards towards Cuddapah district and pierces the ridge etween Pennar and Kistna valleys through a cutting called Mittakondala cutting. Below this point the Kali and Kundu rivers are utilized to carry the irrigation supplies, the canal serving mainly as navigation canal. There are anicuts across the Kundu river at Santhajuttur and at Rajoli at which the canal supplies are again picked up and used for irrigation in the Kurnool-Cuddapah canal and its branches. At about mile 180, the canal crosses the Pennar at Adinimeyapalli anicut and is continued on the right as far as Cuddapah town. The Kurnool-Cuddapah canal flows through black cotton soil and irrigates mostly dry crops. These crops do not require canal supply in years of good and well-distributed rainfall but in other years they require occasional irrigation. The canal is maintained at a heavy and recurring loss particularly because of its use in famine years. The canal was navigable throughout till 1934 when the reach below Lockinsula at mile 74/0 was closed to navigation, as there was little boat traffic, and costly replacement of a number of lock gates below Lockinsula was found involved.

The capital expenditure on the canal is about Rs. 234 lakhs and the return is about 0·84 per cent. It is the most expensive project (excluding Cauvery-Mettur project) in Madras.

Barur Tank System.—The system consists of an anicut across the Ponniar at Nedungal, with a supply channel feeding the Barur tank in Salem district. The supply channel also feeds a number of small tanks on the left bank while the two old channels, the Nedungal and Agaram channels, feed small tanks on the right bank.

The work on the tank and the supply channel was commenced as a famine relief work in 1877 and subsequently revised to include the anicut, etc. The work was completed in 1899. The system irrigates an area of about 4,100 acres.

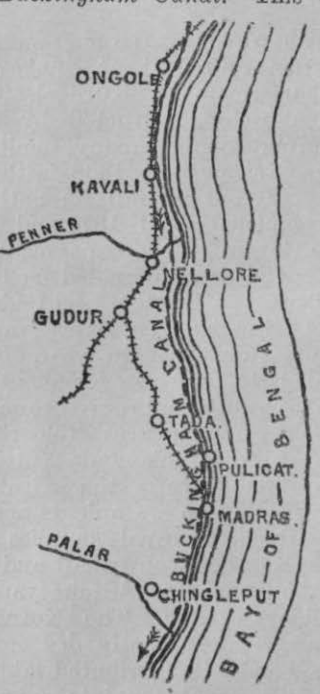
The capital expenditure is Rs. 4·5 lakhs and a return of 2·81 per cent is now obtained.

Nagavalli River System.—At Thottapalli in Vizagapatam district a regulator has been built across the Nagavalli river and a channel about 22 miles long has been dug. The channel irrigates about 27,900 acres. The capital expenditure is about Rs. 18 lakhs return being about 2·58 per cent

Bhavanasi Tank.—This is a reservoir formed by an earthen bund about 2,500 feet long and 30 feet high across the Bhavanasi river in Guntur district with a capacity of about 175 million cubic feet. The reservoir irrigates about 600 acres. The capital expenditure is Rs. 2·65 lakhs and the return is minus 0·54 per cent.

Mopad System.—The Mopad system consists of a reservoir with an earthen bund about 70 feet high at the deepest point and more than a mile long, built across the Manneru river in Nellore district. The reservoir has a capacity of about 2,100 million cubic feet and irrigates lands in a tract where famines are frequent. The ayacut of the tank fixed at about 7,000 acres has been realized du ing this year. The capital expenditure on the system is about Rs. 24 lakhs and the return is 2·00 per cent.

Buckingham Canal.—This canal is used entirely for navigation. It runs through Madras parallel and close to the Coromandel coast, joining up a series of natural backwaters and connects all the coastal districts with Guntur and South Arcot at the ends. The canal runs for 196 miles north of Madras and 62 miles south of Madras. At its northern end it is connected with the Commamur canal at the Kistna delta which in turn is connected to the Godavari canals running as far north as Cocanada. Due to its alignment close to the coast, the canal is difficult and costly to maintain. The navigability of the north canal is difficult and costly to maintain. The navigability of the north canal depends on the open sea bars at Ennore and Pulicat. In a bad year, water levels may drop and lead to considerable difficulty in navigation. The canal carries a large traffic in salt, shells, firewood, building materials and food grains and is one of the main feeders to the Madras market. It carries cargo of an estimated value of about Rs. 20·73 crores and about 98,000 passengers every year. The capital expenditure on the system is Rs. 95·58 lakhs and the return is minus 3·86 per cent.



Chapter IV.

IMPORTANT WORKS CARRIED OUT DURING THE YEAR.

The important works under execution during the year are enumerated below under the categories Grow More Food Works and other works along with the particulars of expenditure and ayacut.

Works for which Capital and Revenue Accounts are kept.

I. **Cauvery Delta System**—*A. Grow More Food Works*—(1) *Providing irrigation facilities to Kambayanatham village and abandoning Motteri tank*—(*Estimates Rs.* 21,500).—Approximate ayacut 140 acres. The expenditure during the year was Rs. 14,435 and to the end of the year Rs. 18,024. The work was completed.

(2) *Providing irrigation facilities to Vallamperambur, Nagathi, etc., villages from Pillaivoikal No.* 3—(*Estimate Rs.* 55,700).—Approximate ayacut 653 acres. The expenditure during the year was Rs. 10,300 and to end of the year Rs. 30,396. The work was completed.

(3) *Extension of irrigation under Cauvery-Kondanar in Prathaparamapuram, etc., villages* (*Estimate Rs.* 56,000).—Approximate ayacut 445 acres. The expenditure during the year was Rs. 15,660 and to end of the year Rs. 31,074. The work has been completed.

(4) *Providing irrigation facilities to certain lands in Rajendran and Narasanayakapuram villages*—(*Estimate Rs.* 30,300).—Approximate ayacut 253 acres. The expenditure during the year was Rs. 12,048 and to the end of the year Rs. 22,491. The work was completed.

(5) *Providing irrigation facilities to certain lands in Vanarangudi and San'hanoor villages*—(*Estimate Rs.* 46,600).—Approximate ayacut 246 acres. The expenditure during the year was Rs. 445 and to end of the year Rs. 13,209. The work has been completed.

B. Other Works—(1) *Constructing a regulator across the Korayar and a drainage sluice to Manamkattankottagam channel* (*Estimate Rs.* 65,580).—The expenditure during the year was Rs. 18,003 and to end of the year Rs 53,434.

(2) *Extensions and improvements to Orathur channel* —(*Estimate Rs.* 15,500).—The expenditure during the year was Rs. 902 and to the end of the year Rs. 14,382.

II. **Cauvery-Mettur Project**—*A. Grow More Food Works*—(6) *Bringing under irrigation an extent of* 40,000 *acres in the Cauvery-Mettur Project Area—First Target*—(*Estimate Rs.* 1,50,000).—Expenditure during the year was Rs. 7,500 and to end of the year Rs. 1,43,789. The work was completed.

(7) *Bringing under irrigation a further extent of* 15,000 *acres in the Cauvery-Mettur Project area—Second Target*—(*Estimate Rs.* 50,000).—Expenditure during the year and to the end of the year was Rs. 48,919.

(8) *Extension of irrigation south of Narasinga Cauvery in Aranthangi taluk*—(*Estimate Rs.* 1,50,000).—Approximate ayacut 2,500 acres. Expenditure during and to the end of the year was Rs. 90,534.

III. **Godavari Delta System**—(9) *Extension of irrigation under Nimmakayala Kothapalli channel*—(*Estimate Rs.* 51,200).—Approximate ayacut 643 acres. Expenditure to the end of the year was Rs. 13,011. The work was in progress.

(10) *Providing irrigation facilities to certain high level lands below Ralli and Lolla locks in Komarajulanka, etc., villages*—(*Estimate Rs.* 2,94,400).—Approximate ayacut 1,660 acres. The expenditure during the year was Rs. 1,07,211 and to the end of the year Rs. 1,22,260. The work was completed during the year.

(11) *Providing irrigation facilities to the dry lands in Antervedi village by extending Addalapalam and Mamidithotta channels*—(*Estimate Rs.* 1,93,000).—Approximate ayacut 2,076 acres. The work was started during the year and an expenditure of Rs. 23,410 incurred.

(12) *Extension of the Sakhinetipalli weir channel and extension of Vasishta left flood bank*—(*Estimate Rs.* 94,800).—Approximate ayacut 671 acres. Expenditure during the year was Rs. 14,724 and to the end of the year Rs. 48,761. The work has since been completed and the scheme is functioning.

(13) *Providing irrigation facilities to certain dry lands in Palivela, Avidi and Ganti villages*—(*Estimate Rs.* 31,800).—Approximate ayacut 426 acres. The expenditure during the year was Rs. 11,606 and to the end of the year Rs. 15,625. The work has been completed.

(14) *Kalipatnam Scheme—Extension of irrigation to* 1,190 *acres*—(*Estimate Rs.* 57,400)—Expenditure during the year was Rs. 4,206 and to end of the year Rs. 31,563. The work was completed and brought to beneficial use during the first crop season of 1945.

(15) *Remodelling the Kodamanchilli channel of Bank Canal*—(*Estimate Rs.* 82,900).—Approximate ayacut 610 acres. Expenditure during the year was Rs. 11,705 and to the end of the year Rs. 24,937. The work was in progress.

(16) *Providing irrigation facilities to certain dry lands in Yeditha village under Yeditha channel*—(*Estimate Rs.* 25,200).—Approximate ayacut 382 acres. Expenditure incurred during the year was Rs. 2,214 and to the end of the year Rs. 5,555. The work was in progress.

(17) *New Wadapalam Scheme*—(*Estimate Rs.* 37,000.)—Approximate ayacut 383 acres. The expenditure during the year was Rs. 6,136 and to the end of the year Rs. 11,004. The work was completed.

(18) *Extension of the Vadlur-Tetali channel*—(*Estimate Rs.* 1,21,550).—Approximate ayacut 649 acres. The work was started during the year and an expenditure of Rs. 20,050 was incurred. The work was in progress.

(19) *Peravaram Pumping Scheme*—(*Estimate Rs.* 9,75,800).—Approximate ayacut 9,600 acres. Expenditure during the year was Rs. 61,540 and to the end of the year Rs. 5,69,910. The work was completed and irrigation commenced from October 1945.

(20) *Sankaraguptam Scheme*—(*Estimate Rs.* 1,00,300).—The work was just started and was in progress. The approximate ayacut under the scheme is 663 acres.

B. Other Works—(3) *Remodelling Pallamkurru Nos. I and II channels*—(*Estimate Rs.* 1,28,834).—An expenditure of Rs. 32,383 was incurred during the year and the total expenditure to end of the year was Rs. 84,857. The work was in progress.

(4) *Protecting the front and rear aprons of the Gannavaram aqueduct with R.C. sheet piles*—(*Estimate Rs.* 7,67,000).—The expenditure during the year was Rs. 42,766 and to the end of the year Rs. 5,37,9)1. The th ee ve ts of he Gannavaram aqueduct which had fallen and the one vent on the western side which had cracked were reconstructed before the first-crop season, i.e., June 1945 and the aqueduct was opened both for irrigation and navigation. Further work was in progress and nearing completion.

(5) *Excavating the Kumarigunta distributary*—(*Estimate Rs* 34,300).—The expenditure during the year was Rs. 3,002 and to the end of the year Rs. 24,959. The work was in progress and nearing completion.

(6) *Forming flood bank and providing revetment between the heads of Lukulam and Polaki channels*—(*Estimate Rs.* 53,000).—The expenditure during the year was Rs. 31,972 and to the end of the year Rs. 40,751. The work was in progress.

IV. **Kistna Delta System**—*A. Grow More Food Works*—(21) *Improvements to Enekepad aqueduct*—(*Estimate Rs.* 24,050).—Ayacut benifited 20,000 acres. The expenditure during he year was Rs. 8,050 and to the end of the year Rs. 24,066. The work has been completed.

(22) *Improvement to Bapatla East Swamp drain*—(*Estimate Rs.* 57,500).—Approximate ayacut 400 acres. Expenditure during the year was Rs. 40,001 and to the end of the year was Rs. 43,061.

(23) *Reconstructing the syphon carrying the Karlapalam channel across the Nallamada drain*—(*Estimate Rs.* 1,10,000).—The work was started during the year and an expenditure of Rs. 4,989 incurred.

B. Other Works—(7) *Improvements to New Thamarakollu channel*—(*Estimate Rs.* 21,390).—Expenditure during the year was Rs. 9,381 and to the end of the year Rs. 22,667.

(8) *Providing irrigation facilities to Bandar Fort Block*—(*Estimate Rs.* 24,820).—Expenditure during the year was Rs. 501 and to the end of the year Rs. 16,036.

(9) *Excavating the new Arthamur channel*—(*Estimate Rs.* 19,600).—Expenditure during the year was Rs. 4,912 and to the end of the year Rs. 17,476.

(10) *Excavating the new Nidamanur channel*—(*Estimate Rs.* 19,100).—Expenditure during the year and to the end of the year were Rs. 8,303 and Rs. 2,138 respectively.

(11) *Extending the existing irrigation sources for the irrigation of non-guaranteed wet lands in Mallavole, Rudravaram, etc., villages*—(*Estimate Rs.* 21,150).—Expenditure during the year was Rs. 254 and to the end of the year Rs. 13,498.

(12) *Improvements to Pedalanka channel*—(*Estimate Rs.* 4,28,690).—Expenditure during the year was Rs. 302 and to the end of the year Rs. 4,08,701.

(13) *Providing irrigation facilities to newly included lands of Girzada village*—(*Estimate Rs.* 22,600).—The expenditure during the year and to the end of the year was Rs. 2 ,010.

(14) *Remodelling the Bhimanadhi channel*—(*Estimate Rs.* 39,500).—The expenditure during the year and to the end of the year were Rs. 391 and Rs. 7,592 respectively.

(15) *Excavation of the Kistna Western High Level channel*—(*Estimate Rs.* 5,82,563).—Expenditure during the year was Rs. 27,326 and to the end of the year Rs. 5,92,107.

(16) *Extending the wharf at Bezwada below girder bridge of the Kistna Eastern Delta main canal*—(*Estimate Rs.* 1,13,200).—The expenditure during the year was Rs. 2 307 and to the end of the year Rs. 88,362.

V. **Kistna East Bank Canal Extension Scheme**—(17) *Kistna East Bank Canal Extension Scheme*—(*Estimate Rs.* 28,49,320).—Expenditure during the year and to the end of the year were Rs. 3,332 and Rs. 27,99,420 respectively.

VI. **Mopad Reservoir**—*A Grow More Food Works*—(24) *Constructing an anicut across the Pillaperu and excavating a channel to improve supply to Mopad main channel*—(*Estimate Rs.* 1,10,000).—Approximate ayacut 603 acres. The expenditure during the year was Rs. 19,492 and to the end of the year Rs. 1,25,912. The work was completed, except for a minor item.

VII. **Kattalai Scheme**—(18) *Excavating the Kattalai High Level channel*—(*Estimate Rs.* 15,91,000).—The expenditure during the year was Rs. 9,901 and to the end of the year Rs. 15,23,258.

VIII. **Uduthorahalla Project**—*A. Grow More Food Works*—(25) *Construction of an anicut across the Uduthorahalla river*—*Kollegal taluk*—(*Estimate Rs.* 2,11,100).—Approximate ayacut 800 acres. The expenditure during the year was Rs 6,273 and to the end of the year Rs. 1,11,202. The work has been completed. Adjustment of a portion of the land charges alone remained to be done.

IX. **Navigation Works**—*Buckingham Canal System*—(1) *Provision of a wharf between Trevelyan Basin and Basin Bridge.* (*Estimate Rs.* 2,25,000).—Expenditure during the year was Rs. 1,925 and to the end of the year Rs. 2,15,257.

(2) *Improvements to the Madras wharf at Basin Bridge*—(*Estimate Rs.* 2,45,582).—Expenditure during the year was Rs. 45,126 and to the end of the year Rs. 2,07,805.

(3) *Revetting the banks of the Junction Canal—North Buckingham Canal*—(*Estimate Rs.* 1,34,000).—Expenditure during the year was Rs. 12,523 and to the end of the year Rs. 1,33,011.

(4) *Deepening the North Buckingham Canal to* 16·50 *level*—(*Estimate Rs.* 2,80,000).—Expenditure during the year was Rs. 5,946 and to the end of the year Rs. 3,16,871.

Works for which Capital and Revenue Accounts are not kept.

B. Other Works—*Vizagapatam district*—(1) *Forming a new tank at Yerakampettah and excavating supply channels*—(*Estimate Rs.* 14,600).—The expenditure during the year was Rs. 1,515 and to the end of the year Rs. 14,030.

(2) *Construction of wells in Araku Valley*—(*Estimate Rs.* 21,000).—The expenditure during the year and to the end of the year was Rs. 7,265. The work was taken up for irrigation purposes in the Araku Valley.

A. Grow More Focd Works—Anantapur district—(1) *Restoration of the Gazulapalli tank*—(*Estimate Rs.* 1,37,830).—Approximate ayacut 130 acres. The expenditure during the year was Rs. 6,524 and to end of the year Rs. 1,31,951 The work was completed.

(2) *Formation of a new tank in Motor Chintalapalli village*—(*Estimate Rs.* 36,200).—Approximate ayacut 97 acres. A sum of Rs. 66 representing the balance of land charges was adjusted during the year. The up-to-date expenditure was Rs. 36,217. The work has already been completed.

(3) *Restoration of a ruined tank in Titakal village*—(*Estimate Rs.* 32,600).—Approximate ayacut 80 acres. The expenditure during the year was Rs. 3,009 and to end of the year Rs. 32,864. The work was completed.

Bellary district—(4) *Restoration of the breaches in Mallapanakeri tank*—(*Estimate Rs.* 41,000).—Approixmate ayacut 200 acres. Expenditure during the year and to the end of the year were Rs. 14,002 and Rs. 20,492 respectively.

Kurnool district—(5) *Chinnathekkur Project*—(*Estimate Rs.* 6,20,000).—Approximate ayacut 500 acres. The expenditure during the year was Rs. 68,715 and to the end of the year Rs. 6,31,687. The work was completed and brought to beneficial use.

(6) *Gargeyapuram Reservoir Project*—(*Estimate Rs.* 1,65,740).—Approximate ayacut 200 acres. The expenditure during the year was Rs. 13,618 and to end of the year Rs. 1,65,931. The work was almost completed except for raising the weir to the ultimate F.T.L.

(7) *Constructing a reservoir across the Paleru at Owk*—(*Estimate Rs.* 4,74,100).—Approximate ayacut 360 acres. The expenditure during the year and to the end of the year were Rs. 49,264 and Rs. 4,87,677 respectively. The work was practically completed.

Cuddapah district—(8) *Vogur-Vakkamada Project*—(*Estimate Rs.* 2,57,400).—Approximate ayacut 1,173 acres. The expenditure during the year was Rs. 17,417 and to the end of the year Rs. 2,21,976. The scheme at present irrigates about 672 acres.

(9) *Excavating a supply channel to the Gotur Mallidevaraya cheruvu.*—(*Estimate Rs.* 52,700).—Approximate ayacut 215 acres. A sum of Rs. 164 being the balance of land charges was adjusted during the year bringing the total expenditure to Rs. 52,800. The work has already been completed.

(10) *Excavating a spring channel to irrigate lands in Gangavaram, Vibravaram, etc., villages*—(*Estimate Rs.* 23,000).—Approximate ayacut 129 acres. The expenditure during the year was Rs. 2,097 and to end of the year Rs. 23,721. An extent of 156 acres was cultivated during the year.

(11) *Improving the supply to Ganganapalli tank by diverting the Jothivagu*—(*Estimate Rs.* 39,500).—Approximate ayacut 200 acres. The expenditure during the year was Rs. 405 and to end of the year Rs 40,136.

Chittoor district—(12) *Restoration of the Beerappacheruvu*—(*Estimate Rs.* 4,15,000).—Approximate ayacut 430 acres. The expenditure during the year and to the end of the year were Rs. 22,414 and Rs. 4,11,872 respectively. During the year under review only 60 acres of lands were cultivated.

Nellore district—(13) *Forming a new tank in Mogalicherla village*—(*Estimate Rs.* 1,58,400).—Approximate ayacut 280 acres. Expenditure during the year was Rs. 4,467 and to the end of the year Rs. 1,06,454. The work was completed except for raising of F.T.L.

(14) *Pambaleru Project*—(*Estimate Rs.* 70,000).—Approximate ayacut 650 acres. The expenditure during the year was Rs. 2,867 and to the end of the year Rs. 64,134. The work was completed.

B. Other Works—(3) *Constructing a dam across Venkatagiri river below Chennur tank supply channel*—(*Estimate Rs.* 23,625).—The work was completed with a further expenditure of Rs. 1,001 during the year bringing the total cost to Rs. 17,130.

A. Grow More Food Works—Chingleput district—(15) *Constructing an anicut across the Ninjal maduvu and excavating a supply channel to the Ponvilanthakalathur tank*—(*Estimate Rs.* 5,34,750).—Approximate ayacut 1,226 acres. Expenditure during the year was Rs. 3,41,076 and to end of the year Rs. 3,71,000.

B. Other Works—(4) *Constructing a masonry sluice in Poondi regulator bund and providing a pipe line for supplying water to the Poondi Research Station*—(*Estimate Rs.* 12,200).—The work was started during the year and an expenditure of Rs. 8,420 incurred.

(5) *Constructing a high co-efficient wier at the right flank of Cooum tank*—(*Estimate Rs.* 26,000).—The expenditure during the year and to the end of the year was Rs. 23,905.

(6) *Constructing a regulator across the Cooum River at its head near Kesavaram anicut*—(*Estimate Rs.* 2,97,000).—The expenditure during the year was Rs. 66,317 and to the end of the year Rs. 2,42,936.

A. Grow More Food Works—South Arcot district—(16) *Excavating a channel on the right side of the Vadakanandal anicut across the Gomuki river*—(*Estimate Rs.* 97,500).—Approximate ayacut 640 acres. The expenditure during the year was Rs. 1,351 and to end of the year Rs. 98,784. The work was completed.

Trichinopoly district—(17) *Constructing an anicut across the Siddamalli odai and improvements to the supply channel to Kovathattai tank*—(*Estimate Rs.* 95,500).—Approximate additional ayacut 192 acres. The expenditure during the year was Rs. 285 and to the end of the year Rs. 66,195. The work was completed.

(18) *Restoration of the Ponneri tank in Udayarpalayam taluk*—(*Estimate Rs.* 6,25,000).—Approximate ayacut 1,440 acres. The expenditure during the year was Rs. 36,293 and to the end of the year Rs. 4,24,878. The work was completed with the exception of certain sundry items.

(19) *Formation of a tank across the Uppar odai in Omandar village*—(*Estimate Rs.* 2,91,170).—Approximate ayacut 377 acres. The expenditure during the year was Rs. 29,857 and to end of the year Rs. 2,53,067. The work was completed.

Coimbatore district—(20) *Restoration of the Nilambur tank*—(*Estimate Rs.* 2,37,600).—Approximate ayacut 400 acres. The expenditure during the year was Rs. 86,317 and to end of the year Rs. 1,71,941. The work was completed in all respects.

B. Other Works—(7) *Constructing a head sluice at M.* 0/2 *at Kolinjivadi channel*—(*Estimate Rs.* 15,500).—The work was started during the year and an expenditure of Rs. 94 was incurred.

Navigation Works—Chingleput district—(1) *Forming a flood bank at M.* 5/3 *of West Bank of North Buckingham Canal to Kudiraikothalam natham*—(*Estimate Rs.* 1,07,500).—Expenditure during the year was Rs. 3,986 and to the end of the year Rs. 80,483.

(2) *Improvements to the West Flood Bank of North Buckingham Canal from M.* 5/3 *to* 10/2—(*Estimate Rs.* 2,33,000).—The expenditure during the year and to the end of the year were Rs. 32,129 and Rs. 2,00,480 respectively.

Malabar district—(3) *Improvements to Pooraparamba Cut*—(*Estimate Rs.* 2,85,400).—The expenditure during the year was Rs. 4,617 and to the end of the year Rs. 2,53,421. The work was completed.

Chapter V.

A. Season rainfall and supply.

Character of the season.—The Province is subject to the influence of two monsoons, the south-west and the north-east.

The south-west monsoon set in as usual on the West Coast by the first week of June 1945. The rainfall was below normal in all the districts during the month. In July, however, there was more than normal rainfall in almost all the districts except Trichinopoly and Madura in the south. The rainfall during August was deficient in the plains of Vizagapatam and the Circars in the north, Nellore, Chingleput and Coimbatore in the middle and Tinnevelly in the extreme south. The deficiency was made good in Vizagapatam, Nellore and Chingelput districts during September

when the East Godavari, West Godavari, Kistna and Guntur districts also benefited, but the other districts suffered. On the whole the monsoon gave less than the normal precipitation in a large number of districts excepting the East and West Godavaris, Guntur, Kurnool, Chingleput and Chittoor districts.

The north-east monsoon commenced from the second week of October. Except in the Vizagapatam, East Godavari and Guntur districts in the north and Madura, Coimbatore and Ramnad districts in the south rainfall was deficient during October. In November there were considerable showers only in the southern districts of Chingleput, South Arcot, Coimbatore, Tanjore, Madura, Ramnad and Tinnevelly. December was disappointing with almost no rainfall in the Godavaris and the Circars while there were very few showers in the other districts. This monsoon was on the whole below normal in several districts.

The following paragraphs give in detail the effect of the monsoons on irrigation under the important systems and in the Ceded districts :—

Godavari Delta System.—Water-supply during the first crop season was sufficient and the crops were also generally good till the beginning of the north-east monsoon. In the third week of October 1945, there was a heavy gale and cyclone in the coastal area of the Delta causing a tidal wave which damaged large areas of crop in the coastal belt. Permission to grow a second crop for almost the whole area swept by the tidal wave was granted, and this concession greatly mitigated the loss of first crop. The supply during the second crop season was good during the transplantation period. Proportionate regulation was resorted to, as usual, when the water level fell down to the crest of the anicut. From the middle of April the supply was supplemented by some showers and freshes in the river. The closure of canals was postponed by a few days beyond the due dates so as to give final wetting to the tail end ayacut and late crops.

Chicacole Minor Rivers System.—Water regulation was carried out as usual by turn system without any difficulty. Only in the case of Wadada channel there was short supply during October 1945 but Korambu work was done and the supply restored to the standing crops. Cyclone damage of October 1945 were repaired during the year.

Nagavalli River System.—There was enough water in the main channel for transplantation. The conditions under the project are improving and efforts are being made for adequate supply of water by providing additional works. Waste lands were being brought under cultivation and water supply extended to them to the extent possible. There was no second crop under the system.

Kistna Delta System.—Freshes in the Kistna arrived in the first week of June 1945 and the highest flood level during the year was recorded as 13·0 feet on 15th July 1945. Transplantation was started from the middle of June and completed by the end of August. The severe cyclone that struck the East Coast in October caused heavy damage to the standing crops in the coastal area and submerged the lands bordering the Collair lake. To make up this loss second crop was granted out of turn to about 2,700 acres in the Collair border and to about 2,000 acres in the Collair banks. Further, lands of all categories, i.e., dry, assessed waste, porambokes, etc., were permitted to raise wet crops wherever possible and irrigation facilities were extended at the cost of the ryots to the tail end involuntary flow lands. About 15,000 acres were thus cultivated in the Kistna Western Delta alone, and adequate supply was given for the second crop in the Kistna Eastern Delta by closing supply to Kistna Western main delta.

Kistna East Bank Canal Extension Scheme.—The Kistna East Bank Canal was opened on the usual date, viz., 15th May 1945 at 6 p.m. and water reached the tail end of the Divi island on the 25th May. Transplantation was begun by the middle of June and was completed by the middle of August. Supply in the canal was steady only from the 26th June after the widening of the canal in the first reach. The late freshes affected the progress of transplantation and rainfall during the period was also insufficient. There was however adequate supply for paddy crops and the supply was stopped on the 6th December. The yield of the crop was below normal owing to the cyclonic wind and rain on the 18th October.

Ceded districts.—In Cuddapah and Chittoor districts the seasonal conditions were fair during the year. Rainfall was however below normal and not timely in Kurnool and Bellary districts. The failure of the north-east monsoon affected the rain-fed tanks in Koilkuntla, Sirvel, Markapur and Cumbum taluks. The crops under Kurnool-Cuddapah Canal did not however suffer much. In Bellary and Anantapur districts the Mungari and Hingari crops were adversely affected by the scanty rainfall. In order to relieve the distress among the labour classes silt clearance works, etc., were started.

Pennar River Canals System.—The average rainfall in the Sangam delta was 25·63 inches against 51·63 inches in the previous year. The maximum water level of Nellore tank was 13·8 feet on the 20th November against an F.T.L. of 16·7 feet. The maximum water levels in the Survepalli reservoir and Kannigiri reservoir were 6·4 feet and 21·45 feet respectively, against the F.R.Ls. of 10 feet and 21·45 feet respectively.

Owing to the late arrival of freshes in the river, cultivation was started only in August. The rainfall during the north-east monsoon was scanty and the flow in the river was low. By careful regulation it was possible to save all but a small extent of crop sown late. The yield was little below normal and there was very little second crop cultivation during the year. The season on the whole was not very satisfactory.

Cauvery Delta System and the Cauvery-Mettur Project.—The north-east monsoon was a failure during the year. The inflow into the Mettur Reservoir was phenomi-nally low and the reservoir which was opened for irrigation on the 25th May when the lake level was 93·65 feet had to be closed for irrigation on the 29th January 1946, when the level was 9·10 feet. The lake level further went down to 6·40 feet the lowest ever recorded. The supply had therefore to be restricted and the distribution carefully regulated throughout the year. The supply was particularly low at the end of the season, and hence the supplies had to be carefully rationed out, and as even this proved inadequate the reservoir was depleted below the level at which power generation was practicable. The Power House had to operate at very low heads for a long time and finally had to be shut down for some weeks to save the irrigated areas from serious damage.

Willingdon Reservoir and the Toludur Project.—The reservoir which was at 21·68 feet at the beginning of the year fell to 9·0 feet on the 9th November and again rose to 23·10 feet on the 17th November owing to heavy rains during the intervening period. As there were no rains after November the level fell rapidly and the reservoir became practically dry at the end of the year. The irrigation under the reservoir pulled through only with difficulty and with a judicious regulation of turns.

Periyar System.—The irrigation season started with a lake level of 130·50 feet on 1st June 1945. The reservoir level went down to 122·05 feet on 8th October 1945, rose gradually to 151·55 feet on 23rd November 1945 on account of the setting in of the north-east monsoon and subsequently went down to 149·40 feet on 5th December 1945.

The average rainfall in the catchment of the Periyar lake during the year was 71·07 inches against 72·14 inches during 1944–45. In the Periyar Delta proper, it was 26·28 inches as against 37·77 inches in the previous year. The monsoon was below average in the Periyar Catchment, both the monsoons, south-west and north-east being partial failures. The rainfall in the Periyar Delta was much less than the average and in the Cumbum Valley nearly equal to average. The season in the Tinnevelly district was not good and supply poor.

In spite of the unsually low level of the Periyar Reservoir till the end of October 1945, a good Kodai crop was successfully raised in the Periyar Delta and Cumbum Valley by careful regulation of supplies and by adopting a system of turns. The Kalam crop cultivation started late in the season owing to the partial failure of the south-west monsoon; the crops were saved by deferring the closure of the Periyar lake from 1st March to 31st March. Even this extension was not sufficient for certain areas which were given supplies by opening the lake again on 7th April 1946 though the lake level was very low.

B. Closure of canals.

The following table shows the dates of closure and reopening of canals in the Godavari and Kistna Deltas :—

Godavari Delta.

Name of canals.	Date of closure.	Date of re-opening.
Eastern Delta canals—		
(*a*) Main and Samalkota Canals and Bank Canal up to Cooppelle lock	16th May 1945, 6 a.m. ..	1st June 1945, 6 p.m.
(*b*) Other canals	6th May 1945, 6 a.m. ..	Do.
Western Delta canals—		
(*a*) Main Canal Ellore Canal and Attili Canal	4th May 1945. ..	1st June 1945.
(*b*) Other canals	1st May 1945 ..	Do.
Central Delta Canals—		
(*a*) Gannavaram Canal	(Not closed as material had to be conveyed to the Gannavaram aqueduct works.)	
(*b*) Other canals, i.e., Amalapuram and Bank Canals ..	15th April 1945 ..	15th May 1945.

NOTE.—The date of closure of the canals noted against item (*a*) Eastern Delta was extended beyond the usual date of closure, viz., 1st May 1946, by 15 days for purposes of water-supply to Cocanada Municipality, and that of item (*b*) by 5 days for giving a final wetting for the Dalwa crop.

Kistna Delta.

Kistna Eastern Delta—		
Main Canal	1st May 1945	15th May 1945.
Ryves Canal	1st April 1945	Do.
Bandar Canal	Do.	Do.
Ellore Canal	1st May 1945	8th June 1945.
East Bank Canal	1st March 1945	15th May 1945.
Kistna Western Delta—		
Main Canal	Not closed. Kept open all through the year.	
Commamur Canal		
Nizamapatam Canal	31st March 1945	16th May 1945.
Bank Canal	15th March 1945	1st June 1945.

C. Industrial crops.

The area cultivated with sugarcane during the year was 64,437 acres chiefly in the Trichinopoly and the Ceded Districts. The area under indigo cultivation was 5,860 acres under the Pennar River Canals System against 7,403 acres in the previous year.

Chapter VI.

Classification of works.

Irrigation works in the Province are classified as (*a*) Works for which Capital and Revenue Accounts are kept, and (*b*) Works for which Capital and Revenue Accounts are not kept. Each class is divided into (i) Irrigation Works, and (ii) Navigation, Embankment and Drainage Works. Works under (*a*) are again subdivided into "Productive" and "Unproductive" the classification being based on the financial results of three consecutive years.

"Productive and Unproductive Works" under "Irrigation" numbered 24 and 33 respectively during the year the same as in the previous year—vide names of the works given in the Statement B-I of Appendix I.

Under "Navigation, etc., works" there are no works at present under "Productive" while there are only two works under "Unproductive"—vide names of the works in the Statement B-I of Appendix I.

The number of works for which Capital and Revenue Accounts are not kept was as shown below :—

	Channels.	Tanks.	Other works.	Total.
In charge of the Public Works Department ..	671	2,309	118	3,098
In charge of the Revenue Department	5,493	24,243	1,743	31,479
Total ..	6,164	26,552	1,861	34,577

FINANCIAL RESULTS.

The following paragraphs deal with the Outlay, Revenue and Working expenses, and the area cropped, the area irrigated and remissions during the year for the Province as a whole and under each class of works mentioned above :—

The Provincial results are tabulated below :—

	1945-46.	1944-45.
Capital Outlay (Direct and Indirect)	1,78,02 507	1,78,93,[illegible]03
Gross revenue	3,56,24,807	3 78 01,827
Working expenses	92,38,264	76,95,980
Net revenue due to improvements	1,70,74,708	1,77,29,055
Total area cropped	35,274,416	36 999,372
Total area irrigated	8,239 019	8,452,355
Remissions	48,21,[illegible]85	8 00,234

The results under each class of works were as follows :—

I. *Irrigation Works*—(1) *Productive Works.*—The Capital Outlay (Direct and Indirect) during the year was Rs. 7,40,864 as against Rs. 8,95,455 in the previous year. The bulk of the outlay was incurred on the Godavari and the Kistna Delta Systems while the Cauvery Mettur Project had a credit of Rs. 1·40 lakhs by sale of special Tools and Plant. Details of works carried out are given in Chapter IV.

(2) The gross working expenses of the year were Rs. 78,09,635 against Rs. 58,72,949 in the previous year.

(3) The gross revenue of the year was Rs. 2,29,34,910, against Rs. 2,47,84,253 in the previous year. The bulk of the revenue was derived as usual from the Cauvery, the Godavari and the Kistna Delta Systems and the Cauvery-Mettur Project though there was a marked decrease of just over Rs. 10 lakhs of land revenue under Godavari Delta System due to large remissions during the fasli.

(4) The net revenue derived and the net profits after deducting interest charges amounted to Rs. 1,07,84,398 and Rs. 41,20,935 against Rs. 1,32,82, 08 and Rs. 66,51,825 respectively in the previous year. The net profit works out to 6·94 per cent on the capital outlay of Rs. 15,53,39,733 against 9·85 per cent 25 years ago.

(5) The total area charged as irrigated was 3,808,191 acres first crop and 726,522 acres second crop against 3,719,054 acres and 827,549 acres respectively in the previous year. The aggregate area irrigated was nearly the same as in the last year.

(6) The estimated value of irrigated crops raised during the year amounted to Rs. 44,16,51,355 against Rs. 52,76,91,836 in the previous year.

(7) The average revenue per acre amounted to Rs. 5·05 on the gross area and Rs. 7·56 on the new irrigation. The working expenses per acre were Rs. 1·72 on the gross area and Rs. 2·57 on the new irrigation.

(8) The remission granted during the year amounted to Rs. 30,83,631 against Rs. 3,40,863 in the previous year. The areas affected were mainly in the Godavari and Kistna Delta Systems.

(9) The total length of main canals and branch channels at the end of the year was 3,264⅜ miles. Of this length 911⅜ miles were for irrigation and navigation combined under the Godavari and the Kistna Delta Systems and the remainder were for irrigation only. The length of the distributaries was 9,528 miles.

(ii) *Unproductive Works.*—(1) The capital outlay (direct and indirect) during the year was Rs. 12,70,517 against Rs. 2,09,508 in the previous year. The oultay was incurred chiefly on the Tungabhadra Project on which the expenditure was Rs. 12·37 lakhs.

(2) The gross working expenses amounted to Rs. 9,16,216 against Rs. 11,17,475 in the previous year.

(3) The gross revenue amounted to Rs. 16,05,419 against Rs. 16,91,282 in the previous year.

(4) The net revenue due to improvements was Rs. 3,58,363 against Rs. 1,71,909 in the previous year. This represents a return of 0·82 per cent on the capital outlay of Rs. 4,33,79,979, to end of the year.

The net revenue fell short of the interest charges by Rs. 15,09,375 of which Rs. 8,53,369 pertain to the Kurnool-Cuddapah Canal and Rs. 3,70,347 to the Palar Anicut System representing the bulk of the deficit. The percentage of the deficit in these cases was 3·67 and 14·88 respectively on the capital outlay.

(5) The area charged as irrigated was 357,871 acres first crop and 51,644 acres second crop against 351,391 acres and 81,994 acres respectively in the previous year. The decrease in the second crop area as compared with the previous year was mainly under the Palar Anicut System and the Kurnool-Cuddapah Canal due to insufficient rainfall during the cultivation season.

(6) The estimated value of crops amounted to Rs. 4,04,27,355 against Rs. 4,24,75,128 in the previous year.

(7) The average revenue per acre amounted to Rs. 3·92 on the gross area and Rs. 6·70 on new irrigation. The working expenses per acre were Rs. 2·23 on the gross area and Rs. 3·82 on the new irrigation.

(8) The remissions granted during the year amounted to Rs. 1,45,853 against Rs. 18,437 in the previous year. The bulk of the remission was granted under the Palar Anicut System.

(9) The total length of the main canals and branch channels at the end of the year was 1,329⅞ miles of which 74 miles were for irrigation and navigation combined under the Kurnool-Cuddapah Canal while the remainder were for irrigation only. The length of the distributaries was 896-15/16 miles.

II. *Navigation, Embankment and Drainage Works—Unproductive Works.*—The gross working expenses on and the gross receipts from the Buckingham and Vedaranyam Canals were Rs. 5,12,413 and Rs. 1,38,097 respectively in the previous year. The loss on the working on the canals was Rs. 3,74,316 compared to the loss of Rs. 5,26,022 in the previous year. Expenditure was as usual large on the Buckingham Canal owing to the need to maintain it in a condition fit for traffic throughout the year.

The total length of the navigable canals was 293¾ miles.

WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE NOT KEPT.

I. *Irrigation Works.*

The following statement shows by minor heads the outlay incurred on works of this class during the year :—

Minor heads.	Ordinary minor works. Public Works Department works.	Ordinary minor works. Revenue Department works in charge of the Public Works Department.	Old maintenance charges.	Tank Restoration scheme works.	Total.
	RS.	RS.	RS.	RS.	RS.
Works	6,42,923	..	..	..	6,42,923
Extensions and improvements.	1,02,758	11	86,342	..	1,89,111
Maintenance and repairs ..	16,21,096	16,328	6,79,110	895	23,17,429
Establishment	5,37,433	4,984	2,09,507	215	7,52,139
Tools and plant	21,503	286	2,693	26	24,508
Miscellaneous expenditure.	6,25,753	..	..	..	(*a*) 6,25,753
Total ..	35,51,506	21,609	9,77,652	1,136	45,51,903
Add outlay incurred by Civil officers on Minor Irrigation works.	..	..	..	..	(*b*) 19,21,014
			Grand total ..		64,72,917

(*a*) Represents outlay on other charges, establishment and tools and plant.

(*b*)	RS.
Works	13,358
Maintenance and repairs ..	15,52,440
Establishment	3,52,950
Tools and plant	2,266
Total ..	19,21,014

The particulars of revenue derived from the works during the year are compared below with those of the previous year :—

	1944–45.	1945–46.
	RS.	RS.
Receipts collected by the Revenue Department.	1,09,90,332	1,06,65,899
Receipts collected by the Public Works Department.	72,550	1,52,935
Total ..	1,10,62,882	1,08,18,834

The area irrigated was 2,669.859 acres first crop and 624, 932 acres second crop against 2,634,528 acres and 837,839 acres respectively in the previous year.

The following statement compares the results of the year under review with those of the previous year and the average of the previous triennium:—

	Outlay incurred.	Area irrigated.	Gross revenue.
	RS.	ACS.	RS.
During 1945–46	64,72,917	3,294,791	1,08,18,834
During 1944–45	79,39,239	3,472,367	1,10,62,882
Average of the triennium ending 1944–45.	65,54,644	3,429,257	1,09,25,023

The decrease in expenditure during the year was due to the fact that the various works taken up under the Grow More Food campaign had been completed in the previous year itself resulting in less expenditure, although expenditure on the investigation of the Ramapadasagar project was large.

The net revenue of the year after deducting working expenses amounted to Rs. 52,66,322 against Rs. 52,98,731 in the previous year.

Tank Restoration Scheme Works.—The area falling within the scope of the Tank Restoration Scheme investigation was 102,500 square miles. Investigations were taken up in the basins comprising an area of 94,660 square miles of which 87,630 square miles had been investigated up to 1931 when the Tank Restoration Scheme divisions and subdivisions were abolished as a measure of retrenchment. Since

April 1931 up to the end of March 1945 an area of 1,329 square miles had been investigated. During the year under review an area of 2·89 square miles only was investigated as the special staff consisting of two subdivisions for investigation and execution of Tank Restoration Scheme works in the Pinchanadhi and Lower Sagileru Minor Basins which were functioning last year were wound up early this year for diverting the staff to more urgent works elsewhere. So the area investigated since 1931 up to the end of March 1946 was 1,332 square miles bringing the toal area investigated to 88,962 square miles representing 87·76 per cent of the total area of 102,500 square miles while the percentages to the end of 31st March 1931 and 1945 were 85·49 and 86 79 respectively.

In the areas investigated, works have been completed in 86,002 square miles and works are in progress or are yet to be started in the remaining area of 2,960 square miles.

The amount of estimates sanctioned during the year was Rs. 5,405 and the amount of estimates sanctioned to date Rs. 204·91 lakhs. The expenditure during the year was Rs. 1,136 and to end of the year Rs. 1,72,15,528 exclusive of charges for establishment and tools and plant. The number and amount of estimate sanctioned the area investigated, etc., are tabulated below :—

Tank Restoration Scheme Works.

Circle.	District.	Approximate area investigated.		Number of estimates sanctioned.		Amount of estimates sanctioned.	
		During 1944–45.	To the end of 1944–45.	During 1944–45.	To the end of 1944–45.	During 1944–45.	To the end of 1944–45.
			SQ. MILES.			RS.	RS.
Dowlaishwaram.	Vizagapatam ..	..	1,350	..	503	..	15,92,341 (Vizagapatam, East Godavari and West Godavari together)
	East Godavari.	..	152	..	928	..	
	West Godavari.	..	2,412	..	..	..	
Bezwada ..	Kistna ..	..	1,491	..	160	..	2,40,888
	Guntur ..	..	4,411	..	257	..	2,04,724
Anantapur ..	Kurnool ..	..	7,648	..	340	..	3,33,682
	Cuddapah ..	3	[illegible]	..	1,357	2,880*	[illegible]
	Anantapur ..	..	7,834	..	789	..	[illegible]
	Bellary ..	..	10,518	..	[illegible]	..	3,44,321
	Chittoor ..	..	5,142	1	2,101	2,525	[illegible]
Madras	Nellore ..	..	7,300	..	474	..	6,13,994
	Chingleput ..	..	2,227	..	602	..	5,86,118
Coimbatore ..	North Arcot ..	..	4,659	..	2,011	..	27,20,767
	Coimbatore ..	..	8,097	..	151	..	3,10,986
	Salem	..	6,052	..	1,273	..	11,36,457
Tanjore ..	South Arcot ..	..	850	..	724	..	16,33,215
	Tanjore ..	..	1,140	..	610	..	7,94,940
Trichinopoly ..	Trichinopoly ..	..	4,564	..	601	..	12,37,649
	Madura ..	..	4,836	..	1,664	..	14,95,984
	Tinnevelly ..	..	1,969	..	969	..	13,42,766
	Ramnad ..	..	1,643	..	3	..	[illegible]
	Total ..	3	88,962	1	15,748	5,405	2,04,91,459

* (Excess sanctioned in a revised estimate.)

II. *Navigation, Embankment and Drainage Works.*

The outlay incurred on the works of this class was Rs. 12,92,575 against Rs. 10,99,285 in the previous year as detailed below :—

	1945-46.	1944-45.
	RS.	RS.
Works	1,04,512	4,63,408
Extensions and improvements	9,445	14,356
Maintenance and repairs	9,83,676	4,65,762
Establishment	1,72,985	[illegible]
Tools and plant	19,693	8,587
Other charges	2,264	707
Total ..	12,92,575	10,99,285

The receipts realized by sale of plantation and produce of trees along river embankments, etc., amounted to Rs. 1,27,547 against Rs. 1,27,368 in the previous year.

The following statement compares the outlay incurred on and the revenue derived from these works with those of the previous year and the average of the previous triennium :—

	Outlay.	Revenue.
	RS.	RS.
During 1945–46	12,92,575	1,27,547
During 1944–45	10,99,[illegible]85	1,27,3[illegible]8
Average of the triennium ending 1944–45 ..	8,12,76[illegible]	1,24,280

Chapter VII.

Projects under consideration.

Of the schemes investigated last year, the following were sanctioned for execution : Sankaraguptam and Komaragiripatnam scheme in the Godavari Deltas Romperu Drainage project and the Choragudi-Achampallam scheme in the Kistna Delta : and the Narasinga Cauvery Extension Scheme in the Cauvery Delta. The scheme for improvements to the Peddalanka drain was submitted to Government and was pending sanction with them. The plans and estimates for the Atleru reservoir were scrutinized and have since been submitted to Government for sanction. The detailed investigation of the Gandikota project and the Vaigai Reservoir scheme and the investigation of the scheme for pumping from the Mettur Reservoir were completed. The proposals of the Special Executive Engineer in respect of the Gandikota Project were under scrutiny by the Superintending Engineer and proposals regarding the Vaigai reservoir were under scrutiny, by the Chief Engineer for Irrigation. Plans and estimates pertaining to the new Right Side Canal from the Mettur Dam have since been received from the Superintending Engineer and plans and estimates regarding the Left Side Canal were under preparation by the Executive Engineer.

The progress of investigation in respect of the schemes mentioned in the last year's report is given below :—

(1) *Vizagapatam, East Godavari, West Godavari and Kistna districts.*—During the year under review one subdivision up to 2nd October 1945 continued the exploratory borings left over by the Preliminary Investigation Division and attended to the preliminary proposals for the commencement of the detailed investigation of the Ramapadasagar project. The detailed investigation of the project and an estimate therefor for Rs. 7 lakhs providing for surveying and levelling operations, purchase of special plant, machinery, apparatus, etc., were sanctioned. Two special divisions for the purpose were also sanctioned of which one was formed on 3rd October 1945 and the other on 30th January 1946 at Polavaram and Peddapuram respectively. The Head Works Division was engaged on the work of exploratory borings and percolation experiments pertaining to Coffer Dam work in foundations at the dam site and was also carrying on with the water-spread survey. The Canals Division was taking check and block levels along the left canal alignment down to Vizagapatam Harbour. The work on the revenue side had not been started pending the findings of the Technical Commission appointed by the Government of India in respect of the sharing of waters by the Madras and the Hyderabad Governments, which were in progress during the year. Certain experiments on soil mechanics on models of the dam were also being done by the Irrigation Research Station at Poondi. Sri Diwan Bahadur N. Govindaraja Ayyangar, B.A., B.E., Chief Engineer (Special), toured the United States of America and the United Kingdom between October 1945 and March 1946 to study the methods of design and construction of large dams and to contact eminent American and English authorities and collect data on deep foundations for dams.

(2) *East Godavari district.*—The detailed investigation of the scheme for constructing a lock and regulator across the Coringa river was completed by the special staff and plans and estimates costing nearly Rs. 15 lakhs to irrigate about 8 000 acres for the present were submitted to the Superintending Engineer. These were under scrutiny by him.

(3) *East Godavari district.*—The plans and estimates for the Hospital Channel Extension scheme were received and submitted to Government for sanction. Sanction of Government has also since been accorded.

(4) *Kistna district.*—The original proposal for irrigating lands in Vaivaka and Korukollu villages through the Nand raju Ccdu channel was turned down and an alternative proposal for the same ayacut was under consideration by the Superintending Engineer.

(5) *Kistna and Guntur districts.*—Plans and estimates for Rs. 3·8 lakhs for the Kandaleru project submitted by the Superintending Engineer were examined and have since been submitted to Government through the Board of Revenue.

(6) *Guntur district.*—The discharge figures relating to the Mellavagu Project received from the Superintending Engineer were under scrutiny.

(7) *Anantapur district.*—Plans and estimates pertaining to the Pennar-Kumudavathi project were submitted to Government. Meanwhile the question of taking up a portion of the work under famine relief was considered and dropped by the Government.

(8) *Anantapur district.*—The detailed investigation by special staff of the Perur-Pennar project was in progress.

(9) *Anantapur and Chittoor districts.*—Plans and estimates for the Papagni anicut scheme were awaited from the Superintending Engineer.

(10) *Chittoor district.*—The results of the experiments on percolation and evaporation losses pertaining to the Kalyani river scheme were examined and further observations were ordered to be made.

(11) Detailed investigation of the Bhimanadi Reservoir scheme was ordered but it was held up for want of staff.

(12) Plans and estimates submitted by the Superintending Engineer for the Yerri kalva anicut scheme were under scrutiny by the Chief Engineer (Irrigation).

(13) Results of gaugings in respect of the Potlavanka scheme were awaited from the Superintending Engineer.

(14) *Kurnool district.*—The preliminary reports on the Gandivagu and Ralla-vagu reservoirs were scrutinized and returned to the Superintending Engineer for gauging the streams.

(15) The results of the gauge readings obtained during the past three years in respect of the scheme for restoring the Dokirayadu tank across Peddavanka were received from the Superintending Engineer and were under scrutiny.

(16) The scheme for reclamation of lagoons along the Kurnool-Cuddapah Canal was investigated in detail and plans and estimates prepared. The scheme for reclaiming one of them was proposed to be executed in 1947–48.

(17) Plans and estimates for the restoration of the Gottipadiya tank were submitted to the Government for sanction.

(18) The scheme for forming a new tank across the Kollimagulavagu in *Paniem* was investigated. It has since been proposed as a Part II Scheme for 1947–48 as a Gr w Mo e Fo d Scheme.

(19) The Ahobilam project has been ordered to be dropped, but a small scheme to restore the Potharaju tank to serve an ayacut of about 90 acres was recommended to the Government for detailed investigation. This was under consideration.

(20) *Cuddapah district.*—The results of the gaugings taken during 1944–45 in respect of the Mekalakunta eru scheme were awaited from the Superintending Engineer.

(21) *Bellary district.*—Plans and estimates relating to the restoration of the Marathi cheruvu were scrutinized and returned to the Superintending Engineer with remarks.

(22) *Nellore district.*—The detailed investigation of the Rallapad project was completed by special staff and plans and estimates therefor were under examination.

(23) *Chingleput district.*—The scheme for constructing a masonry dam across the Cheyyar to supply the Uttiramerur tank was taken up for consideration as a Part II Scheme for 1947-48.

(24) *South Arcot district.*—Proposals regarding the Thambipettai odai scheme were examined and the Superintending Engineer was asked to revise them.

(25) *Tinnevelly district.*—The scheme for restoring the Sivalaperi tank was investigated and the Superintending Engineer's preliminary report was under examination.

(26) *South Kanara district.*—Plans and estimates for the Shiriya scheme received from the Superintending Engineer were examined and returned to him with certain remarks.

(27) *Salem district.*—The Executive Engineer's preliminary report on investigation of the Chinnar Reservoir scheme was under examination by the Superintending Engineer.

(28) *North Arcot district.*—Gaugings in respect of the Ponniar dam project were continued. Prop sals for the construction of a dam at alternative sites were under examination by the Superintending Engineer.

The progress of investigation in respect of the schemes newly taken up during the year is given below :—

(29) *Vizagapatam district.*—The proposal for providing irrigation facilities to the lands in Araku valley by utilizing the waters of the hill stream, Jillada Vagu was investigated in detail and two alternative estimates for Rs. 91,400 and Rs. 66,500 were prepared. As these estimates exceeded the original approximate forecast of Rs. 16,000 they were returned to the Executive Engineer for clarification and modification if feasible with a view to reducing the cost or improving the return.

(30) *Vizagapatam district.*—Proposals for the construction of a dam across the Sarugudugedda in Vedurupalli village designed to irrigate an ayacut of 232 acres were examined and returned to the Superintending Engineer for attending to certain technical remarks.

(31) *East Godavari district.*—Plans and estimates for restoring the Kalyana Rayadu tank in Erraguntlapalli to irrigate an approximate ayacut of 600 acres were returned to the Superintending Engineer with remarks.

(32) *West Godavari district.*—The scheme for excavating a new channel from the Appa Rao channel to irrigate about 156 acres of lands in the proprietary villages of Timmarajupalam, Sankarapuram and Nidadavole was investigated and plans and estimates were resubmitted by the Superintending Engineer after attending to the Chief Engineer's remarks.

(33) *Kistna district.*—Proposals for providing irrigation facilities to about 720 acres in the Vaivaka-Peddathummidi block under the Bantumilli canal were scrutini ed and plans and estimates have since been sent to Government.

(34) To relieve submersion of the surrounding irrigated lands, proposals for improvements to the Repalli Main drain, Battiprolu drain and the Tungabhadra drain were under examination. Detailed plans and estimates in respect of the Tungabhadra drain were under preparation by the Superintending Engineer. The Collector's report on the financial aspect of the scheme was awaited.

Besides the above, several Grow More Food schemes intended to irrigate over 10,000 acres under the Bandar, Pulleru, Polraj and Bantumilli canals in the Kistna delta were under different stages of examination or investigation by the local officers.

(35) *Kurnool district.*—Proposals for the restoration of the breached and abandoned tank, Venkatareddi kunta of Eddavalli, to irrigate an ayacut of 180 acres were examined and plans and estimates were returned to the Superintending Engineer to examine the adequacy of supplies.

(36) *Kurnool district.*—The Superintending Engineer's preliminary report on the scheme for the construction of a reservoir across the Tigaleru at Kotulamuthu to serve an ayacut of 600 acres was examined and detailed investigation recommended to Government. The Government have since sanctioned a special division for the detailed investigation of this and certain other schemes in the Anantapur Circle.

(37) *Cuddapah district.*—The Lower Sagileru project consisting of a reservoir across the Sagileru near Venkamari and designed to irrigate about 5,000 acres at an approximate cost of Rs. 16 lakhs was proposed to be revived. An estimate for gauging the stream for three years was sanctioned. Geological survey of the site is also proposed.

(38) The detailed investigation for the restoration of the Dharbavari Agraharam tank showed that the dependable yield would suffice an ayacut of only 90 acres against 329 acres originally contemplated. Plans and estimates for this were awaited from the Superintending Engineer.

(39) The preliminary report for the formation of a new tank across the Goderu near Tippareddipalli, called the Goderu project was examined and further report regarding the availability of supplies was called for from the Superintending Engineer.

(40) Pending the examination of a proposal for the formation of a new tank across the Vanneswaram vanka and excavation of a supply channel to irrigate about 400 acres, an experimental tank for testing the suitability of the soil for forming the tank bund was ordered to be excavated.

(41) The detailed plans and estimates for the Itigundlapad project with an ayacut of 240 acres were scrutinized and in view of the low return anticipated was recommended to be dropped.

(42) The scheme for supplying water to Vettimatta tank by excavating a channel from the Cheyyar river was under investigation and a report thereon was awaited from the Superintending Engineer.

(43) *Anantapur district.*—The Dorigallu project consisting of the construction of an anicut across the Maddileru to irrigate 2,000 acres, which can be developed later into a reservoir by remodelling the channels to irrigate an additional ayacut of 3,000 acres, was considered. To ascertain the availability of supply in the Maddileru river gaugings were being taken.

(44) The detailed investigation of the scheme for restoring the breached Kotha ank to a lower F.T.L. across the Talapulavanka in Peddannavaripalli was ordered by Government. The approximate ayacut under the tank will be 310 acres.

(45) The Bhairavanitippa project which consists of the construction of a reservoir across the Hagari at Bhairavanitippa village with an initial capacity of 1,500 m.c.ft., to irrigate about 15,000 acres with possibilities of increasing it later to 3,000 m.c.ft., was taken up for detailed investigation by the special division formed for the investigation of projects in the Ceded districts.

(46) Gaugings were being taken for restoring the Marutla tank and improving the supplies to Lakkavaram tank to irrigate about 120 acres.

(47) *Nellore district.*—Proposals for the excavation of a channel from Boggeru to Bhimavaram tank and raising the F.T.L. of the tank by 2 feet so as to irrigate about 311 acres were examined and plans and estimates submitted to Government. The scheme has since been sanctioned.

(48) A scheme for extending irrigation under the Chejerla river channel above Sangam anicut was examined by the Superintending Engineer and preliminary report and approximate estimate submitted by him were under scrutiny by the Chief Engineer (Irrigation).

(49) The preliminary investigation for the formation of a tank across the Chowlapallivagu above Bhairavaram village and construction of reservoir across the Kauveryvagu to irrigate about 600 acres was completed and plans and estimate submitted by the Superintending Engineer. Further particulars were called for from him.

(50) The scheme for excavating a supply channel from the Mopad main channel below the Pillaperu aqueduct for irrigating 360 acres in Chintaladevi and Veligandla villages to serve as a Land Colonization scheme for ex-soldiers was formulated and proposals submitted to the Government.

(51) The detailed investigation of a scheme for extension of irrigation to Yellamanchipad village by excavating a supply channel from the Kannigiri reservoir to irrigate about 370 acres was sanctioned by the Government.

(52) *Chingleput district.*—Plans and estimates for improving the Krishnapuram tank to irrigate about 123 acres were prepared by the Superintending Engineer and submitted to the Chief Engineer (Irrigation).

(53) *Tanjore district.*—Proposals for extending irrigation to about 4,000 acres below the tail dam of the Mulliar by constructing a regulator were examined and the preliminary report and a rough estimate for Rs. 2·4 lakhs were submitted to Government through the Board of Revenue. The Collector's opinion was awaited.

(54) *Trichinopoly district.*—Five alternative proposals for extending irrigation to about 14,000 acres in the Pullambadi area from the Peruvalai channel were considered and Government sanctioned the detailed investigation of one of the proposals, viz., excavation of a separate channel from the Iyyar north of Peruvalai channel course at a higher contour and with a separate head sluice to irrigate the area. The investigation was in progress by special staff.

(55) A smaller scheme to irrigate a limited ayacut of 875 acres under the Peruvalai Channel beyond Sengandi tank by improving the existing drinking water-supply course from Sengandi tank to Pullambadi Peria eri was also considered; this was however held up pending the results of the investigation of the bigger Peruvalai channel scheme.

(56) A scheme for excavating a new canal 65 miles long from the Cauvery 1½ miles above Kattalai Bed Regulator at a contour higher than that of the High Level channel to irrigate about 20,000 acres in Trichinopoly taluk was under detailed investigation by special staff.

(57) A smaller scheme to irrigate about 1,500 acres by extending the Kattalai High Level channel for a length of 4 miles only was also under detailed investigation along with the above scheme.

(58) The extension of irrigation to about 1,175 acres of undeveloped lands under the Kattalai High Level channel by providing necessary improvements was also investigated by the special staff referred to above.

(59) The detailed investigation of a proposal to construct a bed regulator across the Cauvery at Jaddarpalayam so as to dispense with the Korambus put up annually was completed and plans and estimates for Rs. 6·32 lakhs were under scrutiny by the Chief Engineer (Irrigation).

(60) *Madura district.*—Plans and estimates for the construction of a tank in Boothipuram village, Dindigul taluk, to irrigate about 169 acres were under examination by the Chief Engineer (Irrigation).

(61) *Tinnevelly district.*—Remodelling the Tambraparni channels on scientific lines to give an equitable supply to the whole system even in bad years was taken up; investigation of three channels was completed and preliminary report submitted by the Superintending Engineer.

(62) *Coimbatore district.*—Plans and estimates for a scheme to restore the breached Kothavadi tank in Pollachi taluk to irrigate about 298 acres were submitted to Government. The scheme has since been sanctioned.

(63) A preliminary report regarding the construction of an anicut across the Thattahalla river to irrigate about 3,000 acres was examined and further investigation by special staff was ordered. This was being attended to.

(64) *Salem district.*—A scheme for the construction of a reservoir across the Thoppiyar to irrigate about 5,000 acres was investigated and the Chief Engineer (Irrigation) also inspected the site. The estimate for the work was under revision as per Chief Engineer's (Irrigation) instructions during inspection.

(65) *Malabar district.*—The Malampuzha project which consists of the construction of a dam across the Malampuzha and excavation of two contour channels on either side to serve an ayacut of about 40,000 acres was under detailed investigation by special staff.

(66) Proposals for the construction of a low masonry dam to prevent the entry of tidal water and thus enable irrigation of about 600 acres in Calicut taluk, called the Mampuzha project, were examined. As an experimental measure a temporary earthen bund and a lock were proposed. The plans and estimates therefor were prepared.

(67) *South Kanara district.*—Preliminary investigation for the construction of an anicut across the Gurpur river and excavation of two channels to irrigate 3,000 acres was made and special staff for detailed investigation was also posted.

(68) A scheme to form a tank on the right side of the Kumbla river and to reclaim the marshy lands by constructing an anicut to prevent the entry of saline water into the river was under investigation.

Besides the above major schemes a number of small schemes in Malabar and South Kanara districts were also under investigation by special staff.

Grow More Food schemes.—Several major schemes taken up for execution last year were pushed through vigorously and a number of them were either completed or were in an advanced stage of completion. Nine more schemes at an approximate cost of Rs. 8·39 lakhs intended to irrigate about 6,600 acres were sanctioned during the year—vide list appended.

The scheme of subsidy granted by the Government of India for assisting the Grow More Food Campaign was modified recently. Instead of Rs. 50 per ton for additional foodgrains produced subject to a maximum of 25 per cent of the total cost, the present proposals provide for a subsidy of 50 per cent of the net outlay on the scheme or the average value at current prices of the increased amount of average annual production in terms of foodgrains anticipated as a result of the scheme whichever is less.

Tungabhadra project.—The construction of the project was in its initial stages. To ensure quick progress in the execution of the project another circle called the Head Works Circle was sanctioned by the Government and it has since been formed in April 1946 at Hospet. Preliminary arrangements for surveys and final setting out of alignment of the canal, layout of camps, etc., were made during the year. Construction of quarters for the staff and officers along the low level canal and at the dam-site were in progress. Plans and estimates for the main canal aqueduct, instead of a regulator on the Hagari river were under preparation. Formation of a road from Hospet to the dam-site was in progress. The designs for undertunnel and bridges were settled as also contracts for a few of them. Owing to the failure of the monsoon last year expansion relief works were commenced in January 1946 and famine labour was engaged in excavating the canal in five reaches. The technical aspects of the dam construction were under consideration by the Chief Engineers of the Madras and Hyderabad Governments. Sri Diwan Bahadur N. Govind raja Ayyangar, Chief Engineer (Special) in charge of the construction of the project, who was deputed to the United States of America and the United Kingdom in October 1945 to study large irrigation works and recent practices returned in March 1946 after placing orders for machinery, etc., required for the project. Orders for other machinery available in local Army Dumps were also placed on the Disposals Directorate. Collection of materials like cement, steel, etc., were also being attended to.

Post-war Reconstruction Schemes.—The early end of the war bringing in its wake the problem of rehabilitation of returning soldiers, and the provision of occupation for other man-power released from the War Service necessitated the launching of big irrigation schemes. Twelve major irrigation schemes including the Tungabhadra project, Ramapadasagar project, drainage improvements to the Godavari, the Kistna and the Cauvery Deltas, the Vaigai Reservoir scheme and the Gandikottah project were treated as Post-war Irrigation schemes. Of these, the Tungabhadra project, improvements to the Romperu drain in the Godavari Delta and drainage improvements to the Cauvery Delta were sanctioned and were under execution, while the others were under investigation. Similar schemes for the improvements of inland waterways were also formulated, over-riding the principle of financial consideration that had hitherto stood in the way of their development, as cheap transport of essential commodities like foodstuffs, fuel, and fodder are more important these days, and as there was also no reason why the policy adopted

in respect of development of roads and highways should not be applied to the development of water transport also. Sixteen schemes involving the Buckingham canal, the Vedaranyam canal and the West Coast canals were formulated at an approximate total cost of Rs. 52·95 lakhs. These schemes were under examination.

Contour-bunding.—The investigation of the scheme for dry farming and contour-bunding in the famine-affected areas of the Ceded Districts was completed. An estimate for Rs. 2·94 lakhs for contour-bunding on an area of about 5,500 acres near Guntakal was submitted to the Government through the Board of Revenue during the year. Another scheme for contour-bunding about 2,500 acres near Hagari was also formulated by the Director of Agriculture. Orders of Government on both the schemes were awaited.

Research.—The construction of the Irrigation Research Station Laboratory buildings, static tank and outdoor flumes at Poondi was completed and the laboratory was opened in July 1945. Regular experiments in soil mechanics and hydraulics were commenced from then. Arrangements for the gravitational supply of water to feed the outdoor models and the pumping equipment of the laboratory overhead tank not having been completed, experiments in hydraulics had to be limited to outdoor models requiring small discharges only. Tests on soils with special reference to their suitabilities for the formation of earthen embankments were carried out. Studies were also made on certain problems in applied machanics and strength of materials, on the designs of dams such as the Tungabhadra and Ramapadasagar projects. Models both on tank weirs and spill-ways were also constructed and studied. Staunching of canals and other such problems were also done.

Dr. V. I. Vaidyanathan, who was the Director of Irrigation Research, reverted to the Punjab Service in February 1946; consequently direction of Research was taken over by the Chief Engineer for Irrigation and the post of Director was held in abeyance.

Floods, breaches and accidents.—The maximum flood level over the crest of the Dowlaishwaram anicut was 13·30 feet on 24th September 1945 at 6 a.m. against 16·00 feet on 24th August 1944 at 6 a.m. and the maximum ever recorded of 17·10 feet during 1942.

There was no serious damage due to floods, but there was a heavy cyclone and tidal wave on 18th October 1945 when the coastal and the uplands area were affected and the flood banks, revetments, etc., were damaged. The heaviest damage caused was to the right margin of the river above the anicut. These have all been repaired and the margins, where narrow and dangerous, have been well protected.

There were two serious accidents in the handling of boring sets and machinery in the Ramapadasagar Investigation Division and these were dealt with as per rules. A boat accident also occurred on the main canal of the Godavari Western Delta near the Executive Engnieer's bungalow on 28th February 1946, but fortunately with no serious results.

There was a heavy cyclone on October 1945 causing some breaches in the banks of the Commamur canal. These were repaired promptly.

There was no damage on account of floods, but there were some minor breaches in the Kurnool-Cuddapah canal which were repaired without delay.

The Chadurvedamangalam tank, Valaikulam and Sholankulam supply channels in the Ramnad district breached during the rains of November 1945, but these were restored. Some irrigation tanks and channel banks round about Coimbatore town also breached; these were promptly closed.

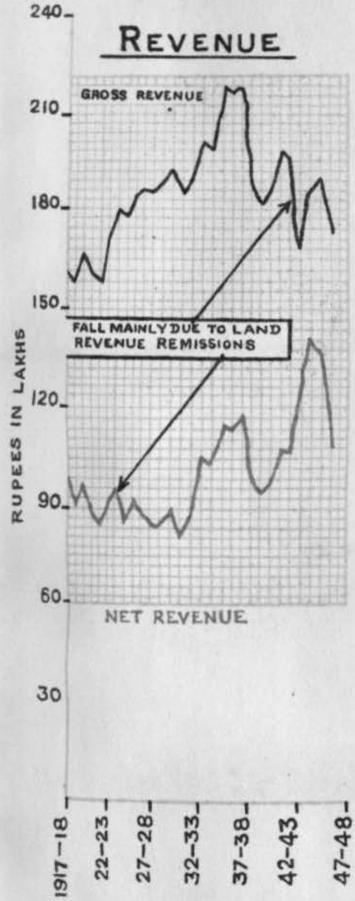
LIST OF SCHEMES SANCTIONED UNDER "GROW MORE FOOD" CAMPAIGN DURING THE YEAR 1945–46.

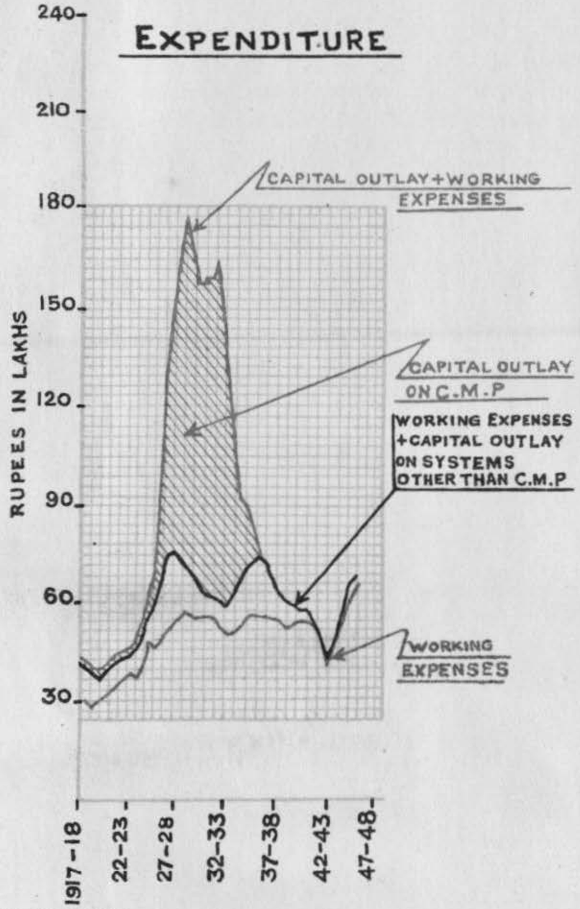
Serial number.	Name of scheme.	Cost.	Area benefited.
		RS.	ACS.
1	Gan avaram and Vibrampuram scheme, Block II, Cuddapah district (G.O. Ms. No. 1 78, P.W., dat 20th June 1945).	20,90	168
2	Extension of Addalapalam and Mamidithota channels and the Vasista left flood bank from N vva drain to Antervod village, East Godavari district, Razole talu (G.O. Ms. No. 207 , P.W., dated 2nd Au ust 19).	2,12, 00	1,900
3	Reconstructing the syphon carrying the Karlapalam channel across the Nallam da drai , Gunt r district, B patla taluk (G.O. Ms. No. 966, P.W., dat d 9th April 1 45).	1,10,100	927
4	Excavation of a supply channel from Boggeru to Bhimavaram tank, Udayagiri taluk, Nellore district (G.O. Ms. No. 2318, P.W., dated 4th September 1945, and Revised Estimate approved in G.O. Ms. No. 767, P.W., dated 24th October 1946).	97,000	311
5	Excavation of a channel for irrigation of Chor gudi, Ac empalam villages, Divi an Gannavaram taluks, Kistna district (G.O. Ms. No. 2571, P.W., dated 3rd October 1945).	1,21,640	777
6	Provision of irrigation facilities by extending Battelanka No. 1 ch nnel in Sankaraguptam and K sanapalli villages, Razole talu , East Godavari district (G.O. Ms. No. 2756, P.W., dated 2 th October 1945).	1,00,300	663
7	Providing irrigation facilities to lands in Undrajavaram and other villages, Tanuku taluk, West Godavari district (G.O. Ms. No. 493, P.W., dated 19th February 1946).	59,5	883
8	Excavation of s pply channel from Nallavagu and restoring the Gurrappa tank, Nellore district (G.O. Ms. No. 810, P.W., dated 22nd March 1946).	49,75	150
9	Providing irrigation facilities to lands in Soolaikottai, Kambayanatham and Arund va uram villages, Papanasam talu , T njore district (G.O. Ms. No. 884, P.W., dated 28th March 1946).	5,000	00
	Total ..	8,39,290	6,579

MADRAS,
15th *January* 1947.

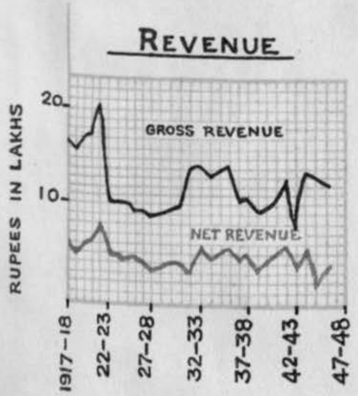
A. R. VENKATA ACHARYA,
Chief Engineer for Irrigation.

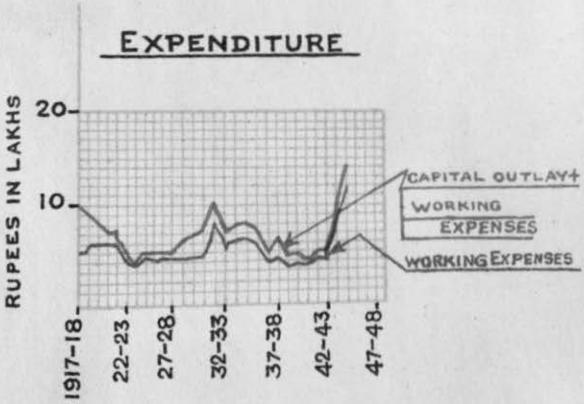
— FINANCIAL RECORD —





PRODUCTIVE





UNPRODUCTIVE

NOTE:– LARGE VARIATIONS DUE TO TRANSFERS FROM U.P. TO P. & VICE VERSA.

Reg. No. 12. Copies 175. Helio, Photo-Zinco Press, C. S. O., Madras. 1947.

APPENDIX I.

Statistical Statements (prescribed by the Secretary of State).

A-I.—Statement of Canals in the Madras Presidency for the year 1945–46.

—		Cauvery delta system. (1)	Srivaikuntam anicut system. (2)	Godavari delta system. (3)	Mehamattur anicut system. (4)	Tadepalli channel. (5)	Kalinga-royan channel. (6)	Vriddhachalam anicut system. (7)	Marudur anicut system. (8)
Source of supply of water		River Cauvery.	River Tambara-parni.	River Godavari.	River Manimukta-nadi.	River Bhavani.	River Bhavani.	River Manimukta-nadi.	River Tambara-parni.
Minimum discharge of river	C.ft. per second.	1,750	121	..	163	..	..	17	142
Maximum discharge of main canals as designed	,,	43,750	1,860	13,730	263	725	893	351	1,595
Maximum discharge during the year	,,	24,016	2,401	14,978	194	735	645	300	1,260
Average rainfall for the river	Inches.	38·62	53·45	121·41	33·95	27·60	35·19	38·47	53·45
Gross area commanded	Acres.	1,706,023	80,000	1,379,445	13,792	20,693	23,696	19,993	35,840
Culturable area commanded	,,	909,034	33,500	877,806	10,651	19,332	12,805	16,359	17,920
Area irrigable by complete project	,,	909,034	26,000	873,000	5,200	19,332	11,843	15,559	17,920
Area irrigable at present	,,	900,925	26,000	866,828	5,000	19,332	11,386	8,829	17,920
Sanctioned estimate—									
Direct charges	Rs.		13,61,520	1,10,89,332		1,70,380	1,78,780		
Indirect charges	,,	83,26,762	1,15,286	19,34,864	87,184	11,050	4,506	1,08,204	60,122
Interest during construction	,,		7,49,577	1,11,38,052		..	..		
Total, Estimate ..	,,	83,26,762	22,26,383	2,41,62,248	87,184	1,81,430	1,83,286	1,08,204	60,122
Expenditure to end of 1945-46—									
Direct charges	Rs.	84,27,882	16,67,459	1,89,09,650	85,091	1,66,383	1,75,980	1,04,144	58,721
Indirect charges	,,	2,73,049	1,07,604	20,87,362	2,093	11,063	4,506	4,060	1,401
Interest during construction	,,	13,37,765	8,67,827	99,82,397	..	..	..	..	..
Total, Expenditure ..	,,	100.38,696	26,42,890	3,09,79,409	87,184	1,77,446	1,80,486	1,08,204	60,122
Works completed at the end of 1945-46—									
Main canals, irrigation	Miles.	943½	..	509½	7	48	57	17	..
Branch canals, irrigation	,,	..	28	..	8	7	5½	16	29
Distributaries	,,	2,798¼	46	1,925½	9·26	..	..	16	7½
Of above—									
Navigable	,,	..	..	498	..	..	..	..	..

A-I.—Statement of Canals in the Madras Presidency for the year 1945–46—*cont.*

——		Pennar river canals system.	Arakankota channel.	Tirukkoyilur anicut system.	Shatiatope anicut system.	Cheyyar anicut system.	Poiney anicut system.	Kistna delta system.	Nandiyar channel system.
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Source of supply of water		River Pennar	River Bhavani.	River Ponniar.	River Vellar.	River Cheyyar.	River Poiney.	River Kistna.	River Nandiyar.
Minimum discharge of river	C.ft. per second.		..	134	136	..	..	1,760 Cusecs	..
Maximum discharge of main canals, as designed	,,	7,760	552	1,271	850	1,542	3,217	14,286	237
Maximum discharge during the year	,,	7,003	300	1,014	1,375	480	1,584	14,498	176
Average rainfall for the year	Inches.	40·53	27·60	36·84	34·48	36·36	21·69	35·91	27·01
Gross area commanded	Acres.	258,600	6,000	54.895	108,069	29,461	42,560	1,350,400	9,480
Culturable area commanded	,,	190,000	5,000	45,977	43,965	29,461	23,824	1,000,000	9,480
Area irrigable by complete project	,,	170,000	5,000	28,000	34,000	23,629	23,824	968,000	7,295
Area irrigable at present	,,	167,500	5,000	28,000	33,000	22,687	22,462	876,527	7,280
Sanctioned estimate—									
Direct charges	Rs.	47,80,289	1,47,006 }	3,99,190	10,89,561	{ 5,24,798	2,95,106	1,42,13,010	62,231
Indirect charges	,,	10,06,096	3,676 }			{ 15,201	8,812	9,81,160	2,484
Interest during construction	,,	22,88,418	.. }			{		1,28,24,716	..
Total, Estimate ..	,,	80,74,803	1,50,682	3,99,190	10,89,561	5,39,999	3,03,918	2,80,18,886	65,715
Expenditure to end of 1945–46—									
Direct charges	Rs.	60,44,941	1,40,769	3,89,189	10,29,886	5,24,798	2,95,106	2,14,44,559	62,231
Indirect charges	,,	10,17,808	3,676	10,001	59,675	15,201	8,812	12,43,973	2,484
Interest during construction	,,	25,84,125	..	.	..	..	..	96,15,269	..
Total, Expenditure ..	,,	96,46,874	1,44,445	3,99,190	10,89,561	5,39,999	3,03,918	3,23,03,801	65,715
Works completed at the end of 1945–46—								M. CHS.	
Main canals, irrigation	Miles.	..	20	57	3	21	55 }	388 7¼	6¼
Branch canals, irrigation	,,	..	4	80	38	40	49 }		
Distributaries	,,	..	..	28·23	149	120	78	2,115 23½	16⅝
Of above—									
Navigable		..	..	..	..	..	..	384 42	—

A-I.—Statement of Canals in the Madras Presidency for the year 1945–46—*cont.*

		Chicacole minor rivers system.	Lower Coleroon anicut system.	Kistna East Bank canal extension scheme (Divi pumping system).	Polavaram Island Project.	Kattalai scheme *Total of (*a*), (*b*) and (*c*).	Kurnool-Cuddapah canal.	Vallur anicut system.	Pelandurai anicut system.
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Source of supply of water		Rivers Langulya, Vamsadhara and Garibula-gedda.	River Coleroon.	River Kistna.	Godavari Central Delta canal.	River Cauvery.	River Tunga-bhadra.	River Kortalayar.	River Vellar.
Minimum discharge of river	C.ft. per second.	..	249	..	..	759	227	..	208
Maximum discharge of main canals as designed	"	Not known	..	1,257	292	1,671	2,000	113	740
Maximum discharge during the year	"	Not known	3,416	1,313	336	1,506	2,025	55	472
Average rainfall for the year	Inches.	45·46	36·81	33·19	35·90	31·69	27·19	46·67	37·63
Gross area commanded	Acres.	88,000	158,526	170,000	23,135	78,597	383,115	10,124	60,670
Culturable area commanded	"	70,000	117,233	136,000	18,648	74,978	357,569	6,974	16,677
Area irrigable by complete project	"	67,000	110,308	88,000	17,600	72,207	130,282	5,216	16,000
Area irrigable at present	"	67,000	107,929	88,000	17,500	66,632	123,419	5,216	12,839
Sanctioned estimate—									
Direct charges	Rs.	2,78,196	30,01,669	58,18,267	17,97,194	45,13,712	2,33,87,114	74,535	6,92,074
Indirect charges	"	11,030			24,463	18,21,296	..	1,666	
Interest during construction	"	..			1,17,744	..	..	..	
Total, Estimate	"	2,89,226	30,01,769	58,18,267	19,39,401	63,35,008	2,33,87,114	76,201	6,92,074
Expenditure to end of 1945-46—									
Direct charges	Rs.	2,78,196	29,13,423	57,45,519	16,76,390	40,53,867	2,33,27,221	74,366	6,43,302
Indirect charges	"	11,030	88,346	1,07,292	27,523	98,316	73,552	1,916	48,772
Interest during construction	"	..	..	..	1,17,744	18,21,296	..	..	..
Total, Expenditure	"	2,89,226	30,01,769	58,52,811	18,21,657	59,73,479	2,34,00,773	76,282	6,92,074
Works completed to end of 1945-46—									
Main canals, irrigation	Miles.	87½	94	37	..	74½	417⅝	..	15
Branch canals, irrigation	"	191⅞	256	..	..	..	..	5⅛	24
Distributaries	"	78⅝	648¼	294	44½	106	294⅞	8	25
Of above—									
Navigable	"	..	..	35½	..	..	75	..	..

* Kattalai system.

South bank canal.	High level channel.	Sriramasamudram canal.
42,000	25,597	11,000
41,000	23,378	10,600
40,000	21,807	10,400
35,164	21,318	10,150

A-II.—Statement of Reservoir Projects in the Madras Presidency for the year 1945–46—*cont.*

—		Dondapad tank.	Yerur tank.	Atmakur tank.	Janga-maheswara-puram tank.	Anama-samudram Beeraperu tank.	Hajipuram tank.	Ponnalur tank.
		(8)	(9)	(10)	(11)	(12)	(13)	(14)
Source of supply of water ..	..	Rainfall.	Rainfall and surplus of upper tanks and spill from Challakalva branch of Swarnamuki.	Catchment of Chandra vanka and Kolagunda vagus.	Catchment of Dondi vagu.	Beeraperu river.	Damaleru diverted into the tank.	
If supplied by rainfall. Area of catchment ..	Sq. miles.	56	60·50	105	60	23·62	100·20	32·14
If supplied by rainfall. Average rainfall during the year ..	Inches.	23·19	39·00	28·81	21·20	14·73	18·26	25·81
Contents of tank between levels of surface of full supply and sill of canal head sluice.	Mill. c.ft.	288·38	317·69	164	79	90·57	309	180·512
Area of surface at full supply ..	Acres.	705	3,285	575	619	474	1,600	719
Gross area commanded ..	,,	3,240	3,176	1,700	960	1,000	2,900	1,973
Culturable area commanded ..	,,	2,880	3,176	1,160	960	1,000	2,900	1,973
Area irrigable by complete project ..	,,	250	3,176	460	290	1,000	700	1,000
Area irrigable at present ..	,,	250	1,470	460	290	1,000	700	1,000
Sanctioned estimate—								
Direct charges ..	Rs.	1,24,786	61,741	1,25,403	61,253	71,687	2,78,774	2,18,689
Indirect charges ..	,,	15,218	1,612		10,411	1,886	33,109	
Interest during construction ..	,,	..	..		..	..	..	
Total, Estimate ..	,,	1,40,004	63,353	1,25,403	71,664	73,573	3,11,883	2,18,689
Expenditure to end of 1945-46—								
Direct charges ..	Rs.	1,24,786	61,741	1,11,959	61,253	71,687	2,78,774	1,92,975
Indirect charges ..	,,	15,218	1,612	13,444	10,411	1,886	33,109	25,674
Interest during construction ..	,,	..	..	..	..	..	..	..
Total, Expenditure ..	,,	1,40,004	63,353	1,25,403	71,664	73,573	3,11,883	2,18,649
Works completed to end of 1945-46—								
Dam (height completed) ..	Feet.	23 (partly in earth and partly in masonry).	..	33	24	..	6	21½
Canals ..	Miles.	..	..	..	3½	..	..	..

A-II.—Statement of Reservoir Projects in the Madras Presidency for the year 1945–46—*cont.*

—		Markapur tank. (15)	Venkatapuram tank. (16)	Bhavanasi tank. (17)	Yellanur tank (18)	Panjapatti reservoir. (19)	Siddapur tank. (20)	Mopad reservoir. (21)	Thippayapalem project. (22)
Source of supply of water		Gundlakamma river.	Free basin and supply from Dhona vagu.	Rainfall.	Catchment basin and supply from Chitravati river.	Drainage basin.	Bhavanasi and other vagus.	Manneru river.	Rainfall.
If supplied by rainfall. Area of catchment	Sq. miles.	270·25	51	43	20·51	108	45	250	120
If supplied by rainfall. Average rainfall during the year ..	Inches.	22·92	18·21	29·79	1·09	19·10	34·27	23·81	18·12
Contents of tank between levels of surface of full supply and sill of canal head sluice.	Mill. c.ft.	124·52	237	174·64	342·5	225	636	2,007	181·89
Area of surface at full supply	Acres.	811	448	650	2,617	609	1,125	3,100	22·18 sq. miles.
Gross area commanded	,,	1,931	1,700	2,700	1,707	2,500	4,900	13,890	1,200
Culturable area commanded	,,	1,701	1,700	2,448	1,641	*	4,250	12,500	1,200
Area irrigable by complete project	,,	1,701	340	841	925	*	1,000	12,500	1,200
Area irrigable at present	,,	1,583	340	841	925	*	1,000	12,500	1,086
Sanctioned estimate—									
Direct charges	Rs.	1,16,657	3,31,776 }	2,65,491 (Direct, Indirect and Interest together)	{ 2,85,711	3,36,090	9,21,980	21,97,000	5,71,122
Indirect charges	,,	4,001	14,824 }		{ 30,009	68,510	26,620	1,00,000	22,221
Interest during construction	,,	..	.. }		{ ..	..	..	..	..
Total, Estimate ..	,,	1,20,658	3,46,600	2,65,491	2,65,720	4,04,600	9,48,600	22,97,000	5,93,343
Expenditure to end of 1945–46—									
Direct charges	Rs.	1,24,481	3,72,250	2,54,395	2,39,192	3,27,781	7,91,038	23,30,611	5,72,196
Indirect charges	,,	4,859	12,671	11,096	30,515	11,495	13,448	97,690	12,020
Interest during construction	,,	..	..	29,806	..	..	..	..	..
Total, Expenditure ..	,,	1,29,340	3,84,921	2,95,297	2,69,707	3,39,276	8,04,486	24,28,301	5,84,216
Works completed to end of 1945–46—									
Dam (height completed)	Feet.	22	31	20	15	40	27·5	71½	63
Canals	Miles.	7½	3¼	6⅝	..	..	6⅞	..	5⅛
Distributaries	,,	..	..	..	3⅜	1½	9	84	¼

* The reservoir breached in 1930 and it never had a wet ayacut.

B-I.—Capital Accounts of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year ending 1945–46.

Works or systems. (1)		Direct charges (net expenditure). Works. (2)	Establishment. (3)	Tools and plant. (4)	Suspense. (5)	*Deduct* Receipts on capital account. (6)	Total. (7)	Indirect charges. (8)	Total excluding interest. (9)	Simple interest. (10)
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS.										
1. PRODUCTIVE WORKS.										
Cauvery delta system ..	To end of previous year.	67,50,086	15,15,626	1,35,869	— 1	14,793	83,86,787	2,72,735	86,59,522	1,17,28,304
	During the year ..	31,327	9,678	98	..	..	41,095	314	41,409	3,77,049
Srivaikuntam anicut system.	To end of previous year.	13,23,683	3,33,353	10,792	..	369	16,67,459	1,07,604	17,75,063	41,19,726
	During the year ..	..	..	..	..	..	..	..	..	75,036
Godavari delta system.	To end of previous year.	1,36,55,849	35,59,095	9,80,120	..	10,206	1,81,84,858	20,81,093	2,02,65,951	3,85,33,724
	During the year ..	6,26,876	82,198	15,718	..	..	7,24,792	6,269	7,31,061	8,30,733
Mehamattur anicut system.	To end of previous year.	67,745	17,320	26	..	..	85,091	2,093	87,184	2,09,306
	During the year ..	..	..	..	..	..	..	..	..	3,828
Thadepalli channel ..	To end of previous year.	1,36,531	29,836	16	..	..	1,66,383	11,063	1,77,446	4,07,961
	During the year ..	..	..	..	..	..	..	..	..	7,487
Kalingarayan channel.	To end of previous year.	1,43,789	32,191	..	..	..	1,75,980	4,506	1,80,486	3,42,072
	During the year ..	..	..	..	..	..	..	..	..	7,919
Vriddhachalam anicut.	To end of previous year.	82,956	21,125	63	..	..	1,04,144	4,060	1,08,204	2,04,081
	During the year ..	..	..	..	..	..	..	..	..	4,686
Chembrambakkam anicut.	To end of previous year.	5,14,255	1,28,958	8,249	..	114	6,51,348	1,12,795	7,64,143	17,56,358
	During the year ..	..	..	..	..	..	..	..	..	29,311
Marudur anicut system.	To end of previous year.	47,925	10,820	— 24	..	..	58,721	1,401	60,122	1,21,190
	During the year ..	..	..	..	..	..	..	..	..	2,642
Pennar river canals system.	To end of previous year.	48,66,793	10,35,931	1,45,075	..	2,858	60,44,941	10,17,808	70,62,749	1,33,14,846
	During the year ..	— 23	— 2	..	..	..	— 25	..	— 25	2,71,776
Arkenkota channel ..	To end of previous year.	1,14,505	26,264	..	..	..	1,40,769	3,676	1,44,445	3,52,970
	During the year ..	..	..	..	..	..	..	..	..	6,335
Tirukkoyilur anicut system.	To end of previous year.	3,18,375	70,709	105	..	..	3,89,189	10,001	3,99,190	8,72,353
	During the year ..	..	..	..	..	..	..	..	..	17,514
Shatiatope anicut system.	To end of previous year.	9,03,113	1,26,113	660	..	..	10,29,886	59,675	10,89,561	14,68,353
	During the year ..	..	..	..	..	..	..	..	..	46,345
Cheyyar anicut system.	To end of previous year.	4,20,163	1,03,941	744	..	50	5,24,798	15,201	5,39,999	11,57,566
	During the year ..	..	..	..	..	..	..	..	..	23,616
Cumbum tank system.	To end of previous year.	68,701	15,284	..	..	..	83,985	2,388	86,373	1,74,046
	During the year ..	..	..	..	..	..	..	..	..	3,779
Poiney anicut system ..	To end of previous year.	2,34,263	60,576	267	..	..	2,95,106	8,812	3,03,918	7,35,751
	During the year ..	..	..	..	..	..	..	..	..	13,280
Periyar system ..	To end of previous year.	80,28,303	16,90,738	7,66,897	..	21,311	1,04,64,627	3,71,027	1,08,35,654	1,92,05,973
	During the year ..	..	..	..	..	..	..	..	..	4,70,908
Kistna delta system ..	To end of previous year.	1,65,48,182	41,26,123	7,25,123	..	43,984	2,13,55,444	12,43,264	2,25,98,708	3,89,48,062
	During the year ..	70,940	17,684	491	..	..	89,115	709	89,824	9,60,521
Nandiyar channel system.	To end of previous year.	51,476	11,755	..	..	..	63,231	2,484	65,715	1,10,234
	During the year ..	..	..	..	..	..	..	..	..	2,845
Lower Coleroon anicut system.	To end of previous year.	24,57,252	4,42,566	16,780	..	3,175	29,13,423	88,246	30,01,669	46,81,478
	During the year ..	..	..	..	..	..	..	..	..	1,31,104
Kistna East Bank canal extension scheme.	To end of previous year.	43,15,799	8,35,833	6,89,020	..	99,270	57,41,382	1,07,259	58,48,641	46,26,222
	During the year ..	3,332	832	23	..	..	4,187	33	4,220	2,57,906
Polavaram island project.	To end of previous year.	12,94,953	3,70,274	14,444	..	4,099	16,75,572	27,516	17,03,088	13,74,585
	During the year ..	787	[illegible]	[illegible]	..	..	[illegible]	7	[illegible]	75,808

Cauvery-Mettur Project.	To end of previous year.	5,95,89,312	61,42,427	2,92,488	— 1	23,60,774	6,36,63,452	10,39,311	6,47,02,763	4,73,30,763
	During the year.. ..	— 80,804	6,264	— 1,245	..	63,765	— 1,36,550	— 868	— 1,40,858	28,61,481
Kattalai scheme ..	To end of previous year.	35,00,945	4,96,873	52,779	1	10,540	40,40,118	98,517	41,38,275	25,59,550
	During the year.. ..	9,101	3,879	29	..	..	13,809	19	13,908	1,81,119
Total, A. Irrigation Works—1. Productive Works.	To end of previous year.	12,54,34,954	2,12,03,731	38,39,493	— 1	25,71,543	14,79,06,634	66,92,255	15,45,58,869	19,43,15,174
	During the year.. ..	6,62,256	1,20,626	15,124	..	63,765	7,34,241	6,623	7,40,864	66,63,463

2. UNPRODUCTIVE WORKS.

Kurnool-Cuddapah canal.	To end of previous year.	1,91,04,522	3,82,879	40,84,103	..	2,44,283	2,33,27,221	73,552	2,34,00,773	5,30,48,760
	During the year.. ..	207	93	7	..	..	307	2	309	10,49,096
Barur tank	To end of previous year.	3,42,783	78,506	6,961	..	22	4,28,228	23,809	4,52,037	9,12,445
	During the year.. ..	..	..	..	..	..	..	..	..	19,264
Vallur anicut system ..	To end of previous year.	60,662	13,679	25	..	..	74,366	1,916	76,282	1,97,413
	During the year.. ..	..	..	..	..	..	..	..	..	3,346
Madras water-supply and irrigation system.	To end of previous year.	13,92,995	2,30,243	6,928	..	1,302	16,28,864	2,40,054	18,68,918	44,70,697
	During the year.. ..	..	..	..	..	..	..	..	..	73,299
Pelandorai anicut system.	To end of previous year.	5,20,637	1,17,426	6,037	..	798	6,43,302	48,772	6,92,074	14,21,707
	During the year.. ..	..	..	..	..	..	..	..	..	28,949
Palar anicut system ..	To end of previous year.	18,68,029	4,74,387	30,047	..	672	23,71,791	1,17,484	24,89,275	62,13,368
	During the year.. ..	..	..	..	..	..	..	..	..	1,06,674
Chicacole minor river system.	To end of previous year.	2,27,662	50,107	427	..	..	2,78,196	11,030	2,89,226	4,55,296
	During the year.. ..	..	..	..	..	..	..	..	..	12,519
Muniyeru system ..	To end of previous year.	4,70,736	1,06,584	3,748	..	1,732	5,79,336	30,265	6,09,601	10,03,591
	During the year.. ..	..	..	..	..	..	..	..	..	26,064
Dondapad tank ..	To end of previous year.	1,05,848	18,945	..	..	7	1,24,786	15,218	1,40,004	2,35,059
	During the year.. ..	..	..	..	..	..	..	..	..	5,615
Yerur tank	To end of previous year.	50,219	11,522	..	..	..	61,741	1,612	63,353	89,685
	During the year.. ..	..	..	..	..	..	..	..	..	2,778
Sagileru system ..	To end of previous year.	3,54,321	80,339	12,449	..	1	4,47,108	17,619	4,64,727	8,13,290
	During the year.. ..	..	..	..	..	..	..	..	..	20,120
Atmakur tank	To end of previous year.	92,765	19,191	3	..	..	1,11,959	13,444	1,25,403	1,62,210
	During the year.. ..	..	..	..	..	..	..	..	..	5,038
Jangamaheswarapuram tank.	To end of previous year.	52,564	8,689	..	..	..	61,253	10,411	71,664	91,570
	During the year.. ..	..	..	..	..	..	..	..	..	2,756
Anamasamudram Berapuru tank.	To end of previous year.	58,421	13,266	..	..	..	71,687	1,886	73,573	98,485
	During the year.. ..	..	..	..	..	..	..	..	..	3,226
Hajipuram tank ..	To end of previous year.	2,30,686	48,308	..	..	220	2,78,774	33,109	3,11,883	3,97,017
	During the year.. ..	..	..	..	..	..	..	..	..	12,545
Ponnalur tank	To end of previous year.	1,61,263	31,658	54	..	..	1,92,975	25,674	2,18,649	2,80,485
	During the year.. ..	..	..	..	..	..	..	..	..	8,684
Markapur tank ..	To end of previous year.	1,01,374	23,066	41	..	..	1,24,481	4,859	1,29,340	1,62,146
	During the year.. ..	..	..	..	..	..	..	..	..	5,602
Nagavalli river system.	To end of previous year.	13,72,616	2,90,064	93,768	..	5,308	17,51,140	44,602	17,95,742	22,29,810
	During the year.. ..	3,002	394	75	..	..	3,471	30	3,501	78,778
Venkatapuram tank ..	To end of previous year.	3,03,994	64,539	4,236	..	519	3,72,250	12,671	3,84,921	4,50,379
	During the year.. ..	..	..	..	..	..	..	..	..	16,751
Bhavanasi tank ..	To end of previous year.	1,85,879	43,103	25,710	..	297	2,54,395	11,096	2,65,491	3,00,704
	During the year.. ..	..	..	..	..	..	..	..	..	11,448
Yellanur tank	To end of previous year.	1,91,292	41,156	7,087	..	343	2,39,192	30,515	2,69,707	2,95,126
	During the year.. ..	..	..	..	..	..	..	..	..	10,764
Panjapatti reservoir project.	To end of previous year.	2,24,998	43,411	60,075	..	703	3,27,781	11,495	3,39,276	3,80,400
	During the year.. ..	..	..	..	..	..	..	..	..	14,750

B-I.—Capital Accounts of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year ending 1945-46—*cont.*

Works or systems.		Direct charges (net expenditure). Works.	Establishment.	Tools and plant.	Suspense.	*Deduct* Receipts on capital account.	Total.	Indirect charges.	Total excluding interest.	Simple interest.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. IRRIGATION WORKS—*cont.*		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
2. UNPRODUCTIVE WORKS—*cont.*										
Siddapur tank	To end of previous year.	5,22,751	96,255	1,72,474	..	442	7,91,038	13,448	8,04,486	9,13,323
	During the year.. ..	..	..	..	..	..	..	..	..	35,597
Nagavaram anicut and supply channel.	To end of previous year.	88,757	18,538	..	..	..	1,07,295	2,595	1,09,890	1,23,[illegible]
	During the year.. ..	..	..	..	..	..	..	..	..	4,828
Mopad reservoir system.	To end of previous year.	17,73,781	3,28,970	2,34,370	..	27,894	23,09,227	97,494	24,06,721	27,06,838
	During the year.. ..	19,556	1,803	25	..	..	21,384	196	21,580	1,04,081
Kaniampalayam anicut.	To end of previous year.	97,391	27,035	495	..	17,700	1,07,221	3,853	1,11,074	1,45,343
	During the year.. ..	..	..	..	..	..	..	..	..	4,825
Toludur reservoir project.	To end of previous year.	15,99,590	4,75,288	3,05,960	..	9,815	23,71,023	2,51,758	26,22,781	28,03,698
	During the year.. ..	..	..	..	..	..	..	..	..	1,06,652
Tippayapalem project.	To end of previous year.	4,41,041	1,30,844	967	..	656	5,72,196	12,020	5,84,216	2,81,244
	During the year.. ..	..	..	..	..	..	..	..	..	25,480
Basavannah channel ..	To end of previous year.	4,68,839	1,12,166	2,197	..	..	5,83,202	6,578	5,89,780	4,45,808
	During the year.. ..	..	..	..	..	..	..	..	..	26,230
Duvvaleru project ..	To end of previous year.	1,01,365	44,860	230	..	..	1,46,455	1,060	1,47,515	31,974
	During the year.. ..	— 150	— 67	— 5	..	..	— 222	— 2	— 224	6,599
Uduthorahalla Scheme.	To end of previous year.	1,04,929	36,782	1,494	..	..	1,43,205	1,050	1,44,255	3,358
	During the year.. ..	6,273	1,538	54	..	..	7,865	63	7,928	6,252
Mahadevapuram tank project.	To end of previous year.	10,128	4,137	55	..	..	14,320	101	14,421	695
	During the year.. ..	3	1	..	..	..	4	..	4	609
Tungabhadra Project ..	To end of previous year.	32,281	9,800	..	..	..	42,081	323	42,404	894
	During the year.. ..	7,98,773	3,64,961	68,225	1,057	3,585	12,29,431	7,958	12,37,419	27,919
Total, A. Irrigation Works—2. Unproductive Works.	To end of previous year.	3,27,15,119	34,75,743	50,59,941	..	3,12,714	4,09,38,089	11,71,373	4,21,09,462	8,11,68,187
	During the year.. ..	8,27,664	3,68,7[illegible]3	68,381	1,057	3,585	12,62,240	8,277	12,70,517	18,67,738
Total, A. Irrigation Works.	To end of previous year.	15,81,50,073	2,46,79,474	88,99,434	— 1	28,84,257	18,88,44,723	78,63,608	19,67,08,331	27,64,83,361
	During the year.. ..	14,89,920	4,89,349	83,505	1,057	67,350	19,96,481	14,900	20,11,381	85,31,201
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.										
2. UNPRODUCTIVE WORKS.										
Vedaranniyam canal ..	To end of previous year.	1,07,885	24,814	..	..	..	1,32,699	3,733	1,36,432	3,91,910
	During the year.. ..	..	..	..	..	..	..	..	..	5,971
Buckingham canal ..	To end of previous year.	72,18,609	16,67,033	1,81,631	..	24,365	90,42,908	4,93,437	95,36,345	2,07,71,353
	During the year.. ..	47,051	4,336	60	..	..	51,447	470	51,917	4,07,767
Total, B. Navigation, etc., Works—2. Unproductive Works.	To end of previous year.	73,26,494	16,91,847	1,81,631	..	24,365	91,75,607	4,97,170	96,72,777	2,11,63,263
	During the year.. ..	47,051	4,336	60	..	..	51,447	470	51,917	4,13,738
Total, B. Navigation, etc., Works.	To end of previous year.	73,26,494	16,91,847	1,81,631	..	24,365	91,75,607	4,97,170	96,72,777	2,11,63,263
	During the year.. ..	47,051	4,336	60	..	..	51,447	470	51,917	4,13,738
Total, Construction of Irrigation, etc., Works.	To end of previous year.	16,54,76,567	2,63,71,321	90,81,065	— 1	29,08,622	19,80,20,330	83,60,778	20,63,81,108	29,66,46,624
	During the year	[illegible]	[illegible]	[illegible]	1,057	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

C-I.—*Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46.*

Works or systems.	Revenue (actual receipts). Irrigation. Irrigation revenue.	Share of land revenue.	Total.	Navigation.	Plantation.	Miscellaneous.	Total.	Less refunds of revenue.	Gross revenue less refunds.	*Deduct* Share of old irrigation revenue.	Total revenue due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A. IRRIGATION WORKS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1. PRODUCTIVE WORKS.											
1 Cauvery delta system	52,19,858	1,63,631	53,83,489	6,110	23,409	13,223	42,742	368	54,25,863	37,86,987	16,38,876
2 Srivaikuntam anicut system	2,29,222	1,490	2,30,712	..	4,018	7,520	11,538	78	2,42,172	79,000	1,63,172
3 Godavari delta system	43,44,704	2,30,733	45,75,437	2,87,419	4,260	75,675	3,67,354	10,982	49,31,809	1,24,000	48,07,809
4 Mehamattur anicut system	25,641	196	25,837	..	91	72	163	25	25,975	4,000	21,975
5 Thadapalli channel system	1,69,374	2,929	1,72,303	..	..	3,229	3,229	107	1,75,425	76,000	99,425
6 Kalingarayan channel system	1,37,031	483	1,37,514	..	..	4,711	4,711	133	1,42,092	85,000	57,092
7 Vriddhachalam anicut system	46,126	339	46,465	..	944	22	966	..	47,431	8,500	38,931
8 Chembarambakkam tank system ..	57,333	957	58,290	..	..	705	705	1,612	57,383	16,000	41,383
9 Marudur anicut system	2,09,622	279	2,09,901	..	279	3,237	3,516	..	2,13,417	1,15,000	98,417
10 Pennar river canals system	8,14,470	73,367	8,87,837	800	94	5,647	6,541	100	8,94,278	2,56,000	6,38,278
11 Arkenkota channel system	40,231	428	40,659	..	..	1,582	1,582	..	42,241	19,000	23,241
12 Tirukkoyilur anicut system	1,37,245	3,369	1,40,614	..	1,000	748	1,748	..	1,42,362	60,000	82,362
13 Shatiatope anicut system	1,58,129	17,031	1,75,170	11	563	304	878	..	1,76,048	20,000	1,56,048
14 Cheyyar anicut system	1,08,782	4,735	1,13,517	..	247	1,633	1,880	..	1,15,397	39,000	76,397
15 Cumbum tank system	31,382	472	31,854	..	..	..	..	..	31,854	30,000	1,854
16 Poiney anicut system	70,219	5,488	75,707	..	100	155	255	..	75,962	38,100	37,862
17 Periyar system	10,43,131	94,863	11,37,994	90	6,572	18,494	25,156	483	11,62,667	2,04,000	9,58,667
18 Kistna delta system	48,35,232	1,92,210	50,27,442	2,09,187	7,828	1,16,416	3,33,431	5,804	53,55,069	71,000	52,84,069
19 Nandiyar channel system	33,837	250	34,087	31	886	84	1,001	..	35,088	17,000	18,088
20 Lower Coleroon anicut system	5,93,312	51,549	6,44,861	166	5,663	7,440	13,269	102	6,58,028	1,55,000	5,03,028
21 Kistna East Bank canal extension scheme.	5,28,019	87,205	6,15,224	2,115	..	19,184	21,299	175	6,36,348	20,300	6,16,048
22 Polavaram Island Project	1,17,769	..	1,17,769	87	276	885	1,248	..	1,19,017	..	1,19,017
23 Cauvery-Mettur Project	16,46,952	28,740	16,75,692	14	9,378	1,10,445	1,19,837	187	17,95,342	99,971	16,95,371
24 Kattalai scheme	4,24,035	121	4,24,156	146	7,063	2,358	9,567	81	4,33,642	2,54,000	1,79,642
Total, A. Irrigation Works—1. Productive Works.	2,10,21,666	9,60,865	2,19,82,531	5,06,176	72,671	3,93,769	9,72,616	20,237	2,29,34,910	55,77,858	1,73,57,052
2. UNPRODUCTIVE WORKS.											
1 Kurnool-Cuddapah canal	3,92,799	3,277	3,96,076	204	1,913	6,743	8,860	137	4,04,799	35,872	3,68,927
2 Barur tank	23,946	787	24,733	..	2,483	71	2,554	21	27,266	5,900	21,366
3 Vallur anicut	8,204	1,074	9,278	..	..	285	285	..	9,563	5,000	4,563
4 Madras Water-supply and Irrigation system.	24,069	462	24,531	..	..	50,873	50,873	..	75,404	11,000	64,404
5 Pelandurai anicut system	64,138	86	64,224	..	1,757	512	2,269	61	66,432	3,000	63,432
6 Palar anicut system	2,29,188	16,852	2,46,040	..	789	6,316	7,105	..	2,53,145	1,25,000	1,28,145
7 Chicacole minor river system	1,90,204	7,874	1,98,078	..	..	647	647	..	1,98,725	95,000	1,03,725
8 Muniyeru anicut system	56,008	62	56,070	..	669	2,880	3,549	..	59,619	2,500	57,119
9 Dondapad tank	1,869	10	1,879	..	..	..	..	..	1,879	..	1,879
10 Yerur tank	801	86	887	..	..	..	..	..	887	425	462

C-I.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46—*cont.*

Works or systems.	Revenue (actual receipts). Irrigation. Irrigation revenue.	Share of land revenue.	Total.	Navigation.	Plantation.	Miscellaneous.	Total.	Less refunds of revenue.	Gross revenue less refunds.	*Deduct* Share of old irrigation revenue.	Total revenue due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*											
2. UNPRODUCTIVE WORKS—*cont.*											
11 Sagileru system	13,220	26	13,246	..	6	140	146	..	13,39?	17,800	— 4,408
12 Atmakur tank	1,771	..	1,771	..	10	190	200	..	1,971	..	1,971
13 Jangamaheswarapuram tank	1,165	..	1,165	..	..	..	..	..	1,165	500	665
14 Anamasamudram-Beeraperu tank	872	1	873	..	..	..	..	..	873	3,600	— 2,727
15 Hajipuram tank	806	70	876	..	..	..	..	..	876	..	876
16 Ponnalur tank	4,356	..	4,356	..	..	..	..	..	4,356	..	4,356
17 Markapur tank	7,067	1	7,068	..	..	44	44	..	7,112	2,130	4,982
18 Nagavalli river system	1,06,225	21,804	1,28,029	..	..	2,336	2,336	..	1,30,365	37,400	92,965
19 Venkatapuram tank	2,948	..	2,9 3	..	..	1	1	..	2,944	..	2,944
20 Bavanasi tank	5,916	..	5,916	..	..	..	..	..	5,916	..	5,916
21 Yellanur tank	2,017	1,104	3,121	..	..	..	..	..	3,121	..	3,1?1
22 Panjapatti reservoir project	..	..	..	..	..	635	635	..	635	..	635
23 Siddapur tank	6,946	..	6,916	..	..	5	5	..	6,951	..	6,951
24 Nagavaram anicut and supply channel	2,681	1,017	?,698	..	..	..	..	..	3,698	2,256	1,442
25 Mopad reservoir system	54,717	5,170	59,8?7	..	..	141	141	..	60,028	433	59,595
26 Kannivampalaiyam anicut	2,698	..	2,698	..	..	..	..	..	2,698	..	2,698
27 Toludur reservoir project	1,51,217	448	1,51,665	..	1,216	1,884	3,100	42	1,54,723	10,590	1,44,133
28 Thippayapalem project	2,672	..	2,672	..	..	1	1	..	2,673	..	2,673
29 Basavanna channel	1,04,055	..	1,04,055	..	114	..	114	..	1,04,169	..	1,04,169
30 Duvvaleru project	..	..	..	..	..	34	34	..	34	..	34
31 Uduthorahalla scheme	..	..	..	..	..	..	..	..	..	..	..
32 Mahadevapuram tank project	..	..	..	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works.	14,62,570	60,211	15,22,781	204	8,957	73,738	82,899	261	16,05,419	3,58,406	12,47,013
Total, A. Irrigation, etc., Works ..	2,24,84,236	10,21,076	2,?5,05,312	5,06,380	81,628	4,67,507	10,55,515	20,498	2,45,40,329	59,36,264	1,86,04,065
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.											
2. UNPRODUCTIVE WORKS.											
1 Vedaranniyam canal	..	..	..	1,039	15	..	1,054	..	1,054	..	1,054
2 Buckingham canal	..	..	..	1,26,335	1,135	10,476	1,37,946	903	1,37,043	..	1,37,043
Total, B. Navigation, etc., Works—2. Unproductive Works.	..	..	..	1,27,374	1,150	10,476	1,39,000	?03	1,38,0 7	..	1,38,097
Total, B. Navigation, etc., Works ..	..	..	..	1,27,374	1,150	10,476	1,39,000	903	1,38,097	..	1,38,097
Total, Construction of Irrigation, etc., Works.	2,24,84,236	10,21,076	2,35,05,312	6,33,754	82,778	4,77,983	11,94,515	21,401	2,46,78,4?6	59,36,264	1,87,42,162

C-I.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46—cont.

Works or systems.	Working expenses—Revenue management.				Working expenses. Maintenance and repairs.							
	Direction.	Establishment.		Total Revenue management.	Establishment.			Extensions and improvements.	Maintenance and repairs.	Tools and plant.	*Deduct* recoveries on revenue account.	Total cost of maintenance.
		Execution.	Civil officers.		Direction.	Execution.	Total.					
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
A. IRRIGATION WORKS.			RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.		RS.
1. PRODUCTIVE WORKS.												
1 Cauvery delta system	..	..	2,67,529	2,67,529	70,518	2,82,073	3,52,591	65,178	7,40,164	2,335	..	14,27,797
2 Srivaikuntam anicut system	..	..	7,586	7,586	7,218	28,875	36,093	166	92,407	327	..	1,36,579
3 Godavari delta system	..	..	2,20,655	2,20,655	69,502	2,78,009	3,47,511	3,93,047	12,53,827	41,299	..	22,56,339
4 Mehamattur anicut system	..	..	1,088	1,088	518	2,073	2,591	57	6,327	19	..	10,082
5 Thadapalli channel system	..	..	4,815	4,815	1,118	4,469	5,587	..	17,963	155	..	28,520
6 Kalirgarayan channel system	..	..	2,626	2,626	1,207	4,828	6,035	240	20,206	178	..	29,285
7 Vriddhachalam anicut system	..	..	1,897	1,897	702	2,806	3,508	..	7,901	23	..	13,329
8 Chembarambakkam tank system	..	..	2,114	2,114	393	1,573	1,966	..	13,962	17	..	18,056
9 Marudur anicut system	..	..	4,745	4,745	1,895	7,580	9,475	..	21,327	75	..	35,622
10 Pennar river canals system	..	..	30,424	30,424	5,493	21,973	27,466	5,994	1,46,698	194	..	2,10,776
11 Arkenkota channel system	..	..	1,083	1,083	393	1,571	1,964	..	6,481	57	..	9,585
12 Tirukkoyilur anicut system	..	..	4,031	4,031	5,296	21,185	26,481	160	76,672	223	..	1,07,567
13 Shatiatope anicut system	..	..	7,758	7,758	2,688	10,754	13,442	297	27,278	80	..	48,855
14 Cheyyar anicut system	..	..	3,654	3,654	3,678	14,715	18,393	1,005	63,179	560	..	86,791
15 Cumbum tank system	..	..	92	92	353	1,412	1,765	..	3,487	120	..	5,464
16 Poiney anicut system	..	..	1,877	1,877	3,136	12,545	15,681	135	57,008	498	..	75,199
17 Periyar system	..	..	42,974	42,974	19,940	79,758	99,698	9,152	2,26,624	833	..	3,79,281
18 Kistna delta system	..	..	2,44,133	2,44,133	78,359	3,13,436	3,91,795	73,346	10,00,200	7,433	..	17,16,907
19 Nandiyar channel system	..	..	846	846	600	2,400	3,000	..	8,172	24	..	12,042
20 Lower Coleroon anicut system	..	..	24,492	24,492	10,408	41,631	52,039	13,287	1,18,435	382	..	2,08,635
21 Kistna East Bank canal extension scheme.	..	..	26,253	26,253	7,762	31,046	38,808	2,419	1,07,845	763	..	1,76,088
22 Polavaram island project	..	..	5,888	5,888	2,409	9,634	12,043	12,669	53,296	1,654	..	85,550
23 Cauvery-Mettur Project	..	..	77,521	77,521	26,168	1,04,669	1,30,837	76,713	2,87,808	1,331	..	5,74,210
24 Kattalai scheme	..	..	8,503	8,503	5,420	21,680	27,100	11,033	59,070	203	..	1,05,909
Total, A. Irrigation Works—1. Productive Works.	..	..	9,92,584	9,92,584	3,25,174	13,00,695	16,25,869	6,64,898	44,16,067	58,783	..	77,58,201
2. UNPRODUCTIVE WORKS.												
1 Kurnool-Cuddapah canal	..	..	17,981	17,981	11,312	45,246	56,558	2,131	96,018	3,392	..	1,76,080
2 Barur tank	..	..	912	912	372	1,489	1,861	270	5,527	51	..	8,621
3 Vallur anicut	..	..	214	214	73	292	365	..	2,278	3	..	2,860
4 Madras water-supply and irrigation system.	..	..	678	676	461	1,844	2,305	129	19,716	25	..	22,851
5 Pelandurai anicut system	..	..	3,061	3,061	1,321	5,282	6,603	..	16,022	46	..	25,732
6 Palar anicut system	..	..	6,001	6,001	13,700	54,803	68,503	12,086	3,03,916	2,056	..	3,92,562
7 Chicacole minor river system	..	..	5,150	5,150	2,638	10,553	13,191	31,973	38,694	1,772	..	90,780
8 Muniyeru anicut system	..	..	2,678	2,678	807	3,226	4,033	1,405	9,938	79	..	18,133
9 Dondapad tank	..	..	94	94	285	1,139	1,424	..	5,443	38	..	6,999
10 Yerur tank	..	..	23	23	42	170	212	..	400	1	..	636

C-I.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945-46—*cont.*

Works or systems.	Working expenses—Revenue management—*cont.* Direction.	Execution.	Civil officers.	Total Revenue management.	Working expenses—*cont.* Maintenance and repairs—*cont.* Establishment—*cont.* Direction.	Execution.	Total.	Extensions and improvements.	Maintenance and repairs.	Tools and plant.	*Deduct* recoveries on revenue account.	Total cost of maintenance.
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.		RS.
A. IRRIGATION WORKS—*cont.*												
2. UNPRODUCTIVE WORKS—*cont.*												
11 Sagileru system	..	..	— 228	— 228	375	1,501	1,876	5	4,025	139	..	5,817
12 Atmakur tank	..	..	89	89	58	233	291	..	899	6	..	1,285
13 Jangamaheswarapuram tank	..	..	33	33	24	98	122	..	400	3	..	558
14 Anamasamudram Beeraperu tank	..	..	— 136	— 136	15	58	73	..	801	1	..	739
15 Hajipuram tank	..	..	43	43	48	191	239	..	495	1	..	778
16 Ponnalur tank	..	..	218	218	45	182	227	..	785	1	..	1,231
17 Markapur tank	..	..	247	247	231	925	1,156	153	2,029	75	..	3,660
18 Nagavalli river system	..	..	3,729	3,729	1,371	5,482	6,853	596	37,452	954	..	49,584
19 Venkatapuram tank	..	..	147	147	66	266	332	..	627	22	..	1,128
20 Bavanasi tank	..	..	296	296	292	1,169	1,461	2,025	3,486	38	..	7,306
21 Yellanur tank	..	..	131	131	176	705	881	..	1,799	62	..	2,873
22 Panjapatti reservoir project	..	..	..	..	79	318	397	938	168	4	..	1,507
23 Siddapur tank	..	..	347	347	155	620	775	69	1,383	50	..	2,624
24 Nagavaram anicut and supply channel	..	..	29	29	150	602	752	..	1,590	55	..	2,426
25 Mopad reservoir system	..	..	2,747	2,747	283	1,133	1,416	65	6,635	9	..	10,872
26 Kanniyampalaiyam anicut	..	..	135	135	34	136	170	..	501	4	..	810
27 Toludur reservoir project	..	..	7,054	7,054	2,605	10,422	13,027	3,089	28,262	91	..	51,523
28 Thippayapalem project	..	..	134	134	123	490	613	1	1,112	38	..	1,898
29 Basavanna channel	..	..	5,203	5,203	577	2,300	2,877	..	6,424	222	..	14,726
30 Duvvaleru project	..	..	..	..	186	744	930	235	1,842	72	..	3,079
31 Uduthorahalla scheme	..	..	..	..	..	..	..	..	..	..	..	..
32 Mahadevapuram tank project	..	..	..	..	..	..	..	..	..	..	..	..
33 Tungabhadra project	..	..	..	..	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works.	..	..	57,008	57,008	37,904	1,51,619	1,89,523	55,170	5,98,667	9,310	..	9,09,678
Total, A. Irrigation, etc., Works	..	..	10,49,592	10,49,592	3,63,078	14,52,314	18,15,392	7,20,068	50,14,734	68,093	..	86,67,879
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.												
2. UNPRODUCTIVE WORKS.												
1 Vedaranniyam canal	..	..	..	..	249	995	1,244	..	4,031	12	..	5,287
2 Buckingham canal	..	..	..	..	8,473	33,890	42,363	22,047	4,37,499	581	..	5,02,490
Total, B. Navigation, etc., Works—2. Unproductive Works.	..	..	..	..	8,722	34,885	43,607	22,047	4,41,530	593	..	5,07,777
Total, B. Navigation, etc., Works	..	..	..	..	8,722	34,885	43,607	22,047	4,41,530	593	..	5,07,777
Total, Construction of Irrigation, etc., Works.	..	..	10,49,592	10,49,592	3,71,800	14,87,199	18,58,999	7,42,115	54,56,264	68,686	..	91,75,656

C-I.—*Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46—cont.*

Works or systems.	Working expenses—*cont.* Indirect charges.	Grand total of working expenses.	*Deduct* old maintenance charge. Direct charges.	Indirect charges.	Total.	Total working expenses on improvements.	Net revenue. Total.	Due to improvements.
	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
	RS.	RS.	RS	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*								
1. PRODUCTIVE WORKS.								
1 Cauvery delta system	8,668	14,36,465	10,04,704	6,100	10,10,804	4,25,661	39,89,398	12,13,215
2 Srivaikuntam anicut system	925	1,37,504	7,578	55	7,633	1,29,871	1,04,668	33,301
3 Godavari delta system	16,469	22,72,808	..	..	..	22,72,808	26,59,001	25,35,001
4 Mehamattur anicut system ..	64	10,146	834	6	840	9,306	15,829	12,669
5 Thadapalli channel system	177	28,427	4,475	36	4,511	23,916	1,46,998	75,509
6 Kalingarayan channel system	205	29,490	5,004	40	5,044	24,446	1,12,602	32,646
7 Vriddhachalam anicut system	79	13,408	..	..	..	13,408	34,203	25,523
8 Chembrambakkam tank system	140	18,199	5,884	54	5,938	12,261	39,184	29,122
9 Marudur anicut system	213	35,835	6,405	47	6,452	29,383	1,77,582	69,034
10 Pennar river canals system	1,536	2,12,312	32,423	297	32,720	1,79,592	6,81,966	4,58,686
11 Arkenkota channel system	65	9,650	1,120	9	1,129	8,521	32,591	14,720
12 Tirukkoyilur anicut system	768	1,08,335	6,470	49	6,519	1,01,816	34,027	— 19,454
13 Shatiatope anicut system	276	49,131	2,157	17	2,174	46,957	1,26,917	1,09,091
14 Cheyyar anicut system	642	87,433	4,020	32	4,052	83,381	27,964	— 6,984
15 Cumbum tank system	35	5,499	1,175	8	1,183	4,316	26,355	— 2,462
16 Poiney anicut system	571	75,770	3,930	31	3,961	71,809	192	— 33,947
17 Periyar system	2,358	3,81,639	35,296	259	35,555	3,46,084	7,81,028	6,12,583
18 Kistna delta system	10,735	17,27,642	..	..	..	17,27,642	36,27,427	35,56,427
19 Nandiyar channel system	82	12,124	4,207	32	4,239	7,885	22,964	10,203
20 Lower Coleroon anicut system	1,317	2,09,952	9,551	73	9,624	2,00,328	4,48,076	3,02,700
21 Kistna East Bank canal extension scheme.	1,103	1,77,191	15,302	122	15,424	1,61,767	4,59,157	4,54,281
22 Polavaram island project	660	86,210	..	..	..	86,210	32,807	32,807
23 Cauvery-Mettur project	3,645	5,77,855	14,955	114	15,069	5,62,786	12,17,487	11,32,585
24 Kattalai scheme	701	1,06,610	63,625	485	64,110	42,500	3,27,032	1,37,142
Total, A. Irrigation Works—1. Productive Works.	51,434	78,09,635	12,29,115	7,866	12,36,981	65,72,654	1,51,25,275	1,07,84,398
2. UNPRODUCTIVE WORKS.								
1 Kurnool-Cuddapah canal	982	1,77,062	4,432	30	4,462	1,72,600	2,27,737	1,96,827
2 Barur tank	58	8,679	..	..	..	8,679	18,587	12,687
3 Vallur anicut	23	2,883	1,425	13	1,438	1,445	6,680	3,118
4 Madras water-supply and irrigation system.	198	23,049	4,156	38	4,194	15,855	52,355	45,549
5 Pelandorai anicut system	160	25,892	153	1	154	25,738	40,540	37,694
6 Palar anicut system	3,160	3,95,722	3,873	31	3,904	3,91, 18	— 1,42,577	— 2,63,673
7 Chicacole minor river system	707	91,487	5, 82	47	5,429	86,058	1,07,238	17,667
8 Muniyeru anicut system	113	18,246	279	2	281	17,965	41,373	39,154
9 Dondapad tank	54	7,053	..	..	..	7,053	— 5,174	— 5,174
10 Yerur tank	4	640	..	..	..	640	247	— 178

C.I.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46—*cont.*

Works or systems.	Working expenses—*cont.*							
	Indirect charges.	Grand total of working expenses.	*Deduct* old maintenance charges.			Total working expenses on improvements.	Net revenue	
			Direct charges.	Indirect charges.	Total.		Total.	Due to improvements.
	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
A. IRRIGATION WORKS—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
2. UNPRODUCTIVE WORKS—*cont.*								
11 Sagileru system	40	5,857	3,239	22	3,261	2 596	7,535	− 7,004
12 Atmakur tank	9	1,294	..	..	..	1,294	677	677
13 Jangamaheswarapuram tank	4	56[illegible]	..	..	..	562	677	− 103
14 Anamasamudram-Beeraperu tank ..	8	747	701	6	707	40	6[illegible]3	− 2,767
15 Hajipuram tank	5	783	..	..	..	783	126	93
16 Ponnalur tank	8	1,2[illegible]9	..	..	..	1,[illegible]39	93	3,117
17 Markapur tank	22	3,682	359	2	361	3,321	3,117	1,661
18 Nagavalli river system	3[illegible]0	49,964	3,346	29	3,375	46,589	3,430	46,376
19 Venkatapuram tank	6	1,134	..	..	..	1,134	80,401	1,810
20 Bavanasi tank	55	7,361	..	..	..	7,361	1,810	− 1,445
21 Yellanur tank	18	2,891	..	..	..	2,891	− 1,445	230
22 Panjapatti reservoir project	11	1,518	..	..	..	1,518	230	− 883
23 Siddapur tank	15	2,639	..	..	..	2,6[illegible]9	− 883	4,312
24 Nagavaram anicut and supply channel ..	16	2,442	..	..	..	2,442	4,312	− 1,000
25 Mopad reservoir system	67	10,939	..	..	..	10,9[illegible]9	1,256	48,656
26 Kanniyampalaiyam anicut	5	815	..	..	..	815	49,089	1,883
27 Toludur reservoir project	314	51,837	..	..	..	51,837	1,88[illegible]	92,[illegible]96
28 Thippayapalem project	11	1,909	..	..	..	1,909	1,02,886	764
29 Basavanna channel	64	14,790	..	..	..	14,790	764	89,379
30 Duvvaleru project	21	3,100	..	..	..	3,100	89,379	− 3,066
31 Uduthorachalla Scheme	..	..	..	..	..	..	− 3,066	..
32 Mahadevapuram tank project	..	..	..	..	..	..	..	..
33 Tungabhadra project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works.	6,538	9,16,216	27,345	221	27,566	8,88,650	6,89,203	3,58,363
Total, A. Irrigation, etc., Works ..	57,972	87,25,851	12,56,460	8,087	12,64,547	74,61,304	1,58,14,478	1,11,4[illegible],761
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.								
2. UNPRODUCTIVE WORKS.								
1 Vedaranniyam canal	40	5,327	..	..	..	5,327	− 4,273	− 4,273
2 Buckingham canal	4,596	5,07,086	..	..	..	5,07,086	− 3,70,043	− 3,70,043
Total, B. Navigation, etc., Works—2. Unproductive Works.	4,636	5,12,413	..	..	..	5,12,413	− 3,74,316	− 3,74,316
Total, B. Navigation, etc., Works ..	4,636	5,12,413	..	..	..	5,12,413	− 3,74,316	− 3,74,316
Total, Construction of irrigation, etc., Works.	62,608	92,38,264	12,56,460	8,087	12,64,547	79,73,717	1,54,40,162	1,07,68,445

C-II.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works for, and up to the end of, 1945–46.

Number of work.	Name of works.	General financial results to end of 1945–46. Mileage in operation. Main canals and branches.	Distribution.	Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when system first came into operation.	Total capital outlay (direct and indirect).	Accumulated arrears of interest.	Accumulated surplus revenues.	Total sum-at-charge [column (7) *plus* column (8)].
(1)	(2)	(3)	(4)	(5)	(6-*a*)	(6-*b*)	(7)	(8)	(9)	(10)
	A. IRRIGATION WORKS.	MILES.	MILES.	RS.			RS.	RS.	RS.	RS.
	1. PRODUCTIVE WORKS.									
1	Cauvery delta system	943½	2,798¼	87,08,498	31–3–1889	..	87,00,931	..	5,32,21,310	87,00,931
2	Srivaikuntam anicut system	28	46	17,75,063	31–3–1889	..	17,75,063	..	1,25,515	17,75,063
3	Godavari delta system	509-5/8	1,887	2,28,05,155	31–3–1890	1877–78	2,09,97,012	..	16,01,35,150	2,09,97,012
4	Mehamattur anicut system	15	9¼	87,184	March 1891	..	87,184	..	4,03,413	87,184
5	Thadapalli channel system	85	..	1,77,446	1893	..	1,77,446	..	21,25,926	1,77,446
6	Kalingarayan channel system	62½	..	1,80,486	1893	..	1,80,486	..	8,53,643	1,80,486
7	Vriddhachalam anicut system	33	16	1,08,204	31–3–1893	..	1,08,204	..	7,29,739	1,08,204
8	Chembarambakkam tank system	10-7/8	1-5/8	7,64,143	31–3–1893	..	7,64,143	..	4,07,553	7,64,143
9	Marudur anicut system	29	7½	60,122	1893	..	60,122	..	43,88,626	60,122
10	Pennar river canal system	26½	455-1/3	70,81,444	31–3–1894	1860–61	70,62,724	..	1,23,45,495	70,62,724
11	Arkenkota channel system	24	..	1,44,445	31–3–1894	..	1,44,445	..	1,43,609	1,44,445
12	Tirukkoyilur anicut system	137	28¼	3,99,190	31–3–1895	..	3,99,190	..	8,11,366	3,99,190
13	Shatiatope anicut system	41	149	10,89,561	31–3–1895	..	10,89,561	..	49,43,603	10,89,561
14	Cheyyar anicut system	61	120	5,39,999	31–3–1896	..	5,39,999	62,640	..	6,02,639
15	Cumbum tank system	..	23¾	86,373	31–3–1896	..	86,373	..	20,563	86,373
16	Poiney anicut system	104	78	3,03,918	1897	..	3,03,918	..	13,49,458	3,03,918
17	Periyar anicut system	152	118	1,08,35,654	31–3–1897	1896–97	1,08,35,654	..	42,11,221	1,08,35,654
18	Kistna delta system	388	2,115	2,30,89,729	31–3–1898	..	2,26,88,532	..	18,83,19,663	2,26,88,532
19	Nandiyar channel system	6½	16½	65,715	1899	1895-96	65,715	..	53,622	65,715
20	Lower Coleroon anicut system	383	620½	30,01,669	30–6–1903	..	30,01,669	..	1,44,12,594	30,01,669
21	Kistna East Bank canal extension scheme ..	37	294	58,57,175	31–10–1913	1917–18	58,52,861	..	16,65,349	58,52,861
22	Polavaram island project	..	44-5/8	17,12,876	28–2–1934	1929–30	17,03,913	1,85,696	..	18.89,609
23	Cauvery-Mettur project	113-5/8	594¾	6,81,60,501	30–9–1934	1932–33	6,45,62,405	3,84,34,507	..	10,29,96,912
24	Kattalai scheme	74½	106	45,24,732	..	1929–30	41,52,183	21,28,373	..	62,80,556
	Total, A. Irrigation—1. Productive Works.	3,264-3/8	9,528-7/12	16,15,59,282	..	..	15,53,39,733	4,08,11,21	39,07,27,418	19,61,50,949

C-II.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works for, and up to the end of, 1945-46—*cont.*

Number of work.	Name of works.	Financial results of the year 1945-46.									
		Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage on capital outlay [column (7)].	Percentage on sum-at-charge [column (10)].	Interest.	Net profit.	Net loss.	Area irrigated	Percentage of working expenses to receipts [columns (12) to (11)].
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	A. IRRIGATION WORKS—*cont.*	RS.	RS.	RS.			RS.	RS.	RS.	ACS.	
	1. PRODUCTIVE WORKS—*cont.*										
1	Cauvery delta system	16,38,876	4,25,661	12,13,215	13·94	13·94	3,77,049	8,36,166	..	10,70,361	25·97
2	Srivaikuntam anicut system	1,63,172	1,29,871	33,301	1·88	1·88	75,036	..	41,735	38,725	79·59
3	Godavari delta system	48,07,809	22,72,808	25,35,001	12·07	12·07	8,30,733	17,04,268	..	12,29,095	47·27
4	Mahamattur anicut system	21,975	9,306	12,669	14·53	14·53	3,828	8,841	..	4,900	42·35
5	Thadapalli channel system	99,425	23,916	75,509	42·55	42·55	7,487	68,022	..	23,598	24·05
6	Kalingarayan channel	57,092	24,446	32,646	18·09	18·09	7,919	24,727	..	22,914	42·82
7	Vridhachalam anicut system	38,931	13,408	25,523	23·59	23·59	4,686	20.837	..	9,894	34·44
8	Chembarambakkam tank	41,383	12,261	29,122	3·81	3·81	29,311	..	189	19,600	29·63
9	Marudur anicut system	98,417	29,383	69,034	115·88	115·88	2,642	66,392	..	27,870	29·84
10	Pennar river canal system	6,38,278	1,79,592	4,58,686	6·49	6·49	2,71,776	1,86,910	..	1,77,805	28·14
11	Arkenkota channel	23,241	8,521	14,720	10·19	10·19	6,335	8,385	..	5,797	36·66
12	Tirukkoyilur anicut system	82,362	1,01,816	— 19,454	— 4·87	— 4·87	17,514	..	36,968	34,766	123·62
13	Shatiatope anicut system	1,56,048	46,957	1,09,091	10·01	10·01	46,345	62,746	..	40,019	30·09
14	Cheyyar anicut system	76,397	83,381	— 6,984	— 1·29	— 1·16	23,616	..	30,600	32,753	109·14
15	Cumbum tank	1,854	4,316	— 2,462	— 2·85	— 2·85	3,779	..	6,241	6,086	232·80
16	Poiney anicut system	37,862	71,809	— 33,947	— 11·17	— 11·17	13,280	..	47,227	25,871	189·66
17	Periyar system	9,58,667	3,46,084	6,12,583	5·65	5·65	4,70,908	1,41,675	..	2,01,852	36·10
18	Kistna delta system	52,84,069	17,27,642	35,56,427	15·67	15·67	9,60,521	25,95,906	..	10,02,337	32·70
19	Nandiyar channel system	18,088	7,885	10,203	15·53	15·53	2,845	7,358	..	9,940	43·59
20	Lower Coleroon anicut system	5,03,028	2,00,328	3,02,700	10·08	10·08	1,31,104	1,71,596	..	1,23,161	39·82
21	Kistna east bank canal extension scheme ..	6,16,048	1,61,767	4,54,281	7·76	7·76	2,57,906	1,96,375	..	99,864	26·26
22	Polavaram island project	1,19,017	86,210	32,807	1·93	1·74	75,393	..	42,586	23,277	72·43
23	Cauvery-Mettur project	16,95,371	5,62,786	11,32,585	1·75	1·10	28,61,481	..	17,28,896	2,31,963	33·19
24	Kattalai scheme	1,79,642	42,500	1,37,142	3·30	2·17	1,81,969	..	44,827	72,265	23·77
	Total, A. Irrigation—1. Productive Works.	1,73,57,052	65,72,654	1,07,84,398	6·94	5·50	66,63,463	41,20,935	..	45,34,713	37·87

C-II.—*Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works for, and up to the end of, 1945–46—cont.*

General financial results to end of 1945–46.

Number of work. (1)	Name of works. (2)	Mileage in operation. Main canals and branches. (3) MILES.	Distribution. (4) MILES.	Estimated cost of construction (direct and indirect). (5) RS.	Date of completion of work. (6-*a*)	Date when system first came into operation. (6-*b*)	Total capital outlay (direct and indirect). (7) RS.	Accumulated arrears of interest. (8) RS.	Accumulated surplus revenues. (9) RS.	Total sum-at-charge [column (7) *plus* column (8)]. (10) RS.
	A. IRRIGATION WORKS—*cont.*									
	2. UNPRODUCTIVE WORKS.									
1	Kurnool-Cuddapah canal	417-5/8	294-7/8	2,34,01,082	Not known.	1882–83	2,34,01,082	4,77,37,059	..	7,11,38,141
2	Barur tank	11	26	4,52,037	31-3-1891	1887–88	4,52,037	4,85,730	..	9,37,767
3	Vallur anicut	5-5/8	8	76,282	31-3-1893	..	76,282	60,447	..	1,36,729
4	Madras Water-supply and Irrigation system.	11¼	..	18,68,918	1893	..	18,68,918	30,90,772	..	49,59,690
5	Pelandorai anicut system	39	25	6,92,074	1893	..	6,92,074	4,73,836	..	11,65,910
6	Palar anicut system	157	227	24,89,275	31-3-1896	..	24,89,275	17,72,521	..	42,61,796
7	Chicacole minor rivers system	279-3/8	78-3/8	2,89,226	31-3-1900	..	2,89,226	..	7,95,384	2,89,226
8	Muniyeru system	261	28-7/16	6,09,601	1901–02	1898–99	6,09,601	2,71,411	..	8,81,012
9	Dondapad tank	..	6-7/8	1,40,004	31-3-1903	1898–99	1,40,004	2,26,192	..	3,66,196
10	Yerur tank	..	..	63,353	31-3-1907	1912–13	63,353	63,558	..	1,26,911
11	Sagileru system	12	..	4,64,727	31-3-1907	1898–99	4,64,727	8,80,175	..	13,44,902
12	Atmakur tank	..	4½	1,31,143	31-8-1907	1912–13	1,25,403	1,28,454	..	2,53,857
13	Jangamaheswarapuram tank	3¼	5⅛	71,664	31-3-1908	1912–13	71,664	83,489	..	1,55,153
14	Anamasamudram-Beraperu tank	..	2-7/8	73,573	31-3-1910	1911–12	73,573	1,30,452	..	2,04,025
15	Hajipuram tank	..	4½	3,11,883	31-3-1911	1910–11	3,11,883	3,24,601	..	6,36,484
16	Ponnalur tank	..	..	2,18,649	31-3-1911	1910–11	2,18,649	2,81,203	..	4,99,852
17	Markapur tank	7½	..	1,29,340	31-3-1911	1909–10	1,29,340	1,39,587	..	2,68,927
18	Nagavalli river system	64½	47½	18,02,487	31-12-1913	1909–10	17,99,243	5,24,143	..	23,23,386
19	Venkatapuram tank	3¼	..	3,84,921	31-3-1918	1921–22	3,84,921	4,62,217	..	8,47,138
20	Bhavanasi tank	6-3/8	..	2,65,491	31-3-1919	1921–22	2,65,491	2,87,893	..	5,53,384
21	Yellanur tank	..	3-7/8	2,69,707	31-3-1919	1920–21	2,69,707	2,64,632	..	5,34,339
22	Panjapatti reservoir	..	1½	3,39,276	31-6-1919	1924–25	3,39,276	6,10,022	..	9,49,298
23	Siddapur tank	6-7/8	9	8,04,486	31-10-1919	1921–22	8,04,486	9,04,893	..	17,09,379
24	Nagavaram anicut and supply channel	2	..	1,09,890	31-12-1919	1920–21	1,09,890	1,09,402	..	2,19,292
25	Mopad reservoir system	..	84	24,20,650	30-4-1921	1921–22	24,28,301	22,53,712	..	46,82,013
26	Kanniyampalayam anicut	10½	..	1,11,074	31-3-1922	1924–25	1,11,074	1,60,677	..	2,71,751
27	Toludur reservoir project	31¾	40	26,22,781	31-10-1925	1924–25	26,22,781	15,51,058	..	41,73,839
28	Tippayapalem project	..	..	5,93,900	In progress.	In progress.	5,84,216	2,78,994	..	8,63,210
29	Basavannah channel	..	..	5,92,100	Do.	Do.	5,89,780	4,95,878	..	10,85,658
30	Duvvaleru project	..	..	1,52,075	Do.	Do.	1,47,291	46,225	..	1,93,516
31	Uduthorahalla scheme	..	..	2,11,088	Do.	Do.	1,52,183	9,610	..	1,61,793
32	Mahadevapuram tank project	..	..	1,12,489	Do.	Do.	14,425	1,304	..	15,729
33	Tungabhadra project	..	..	9,11,34,000	Do.	Do.	12,79,823	28,813	..	13,08,636
	Total, A. Irrigation Works—2. Unproductive Works.	1,329-7/8	896-15/16	13,34,09,226	..	..	4,33,79,979	6,41,38,960	7,95,384	10,75,18,939
	Total, A. Irrigation Works ..	4,594¼	10,425-25/48	29,49,68,508	..	..	19,87,19,712	10,49,50,176	39,15,22,802	30,36,69,888
	B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.									
	2. UNPRODUCTIVE WORKS.									
1	Vedaranyam canal	31¾	..	1,36,432	31-3-1893	..	1,36,432	8,21,440	..	9,57,872
2	Buckingham canal	262	..	96,44,500	March 1897	..	95,88,262	2,79,49,267	..	3,75,37,529
	Total, B. Navigation, etc., Works—2. Unproductive Works.	293¾	..	97,80,932	..	..	97,24,694	2,87,70,707	..	3,84,95,401
	Total, B. Navigation, etc., Works. ..	293¾	..	97,80,932	..	..	97,24,694	2,87,70,707	..	3,84,95,401
	Total, Construction of Irrigation, etc., Works.	4,888	10,425-25/48	30,47,49,440	..	..	20,84,44,406	13,37,20,883	39,15,22,802	34,21,65,289

C-II.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works for, and up to the end of, 1945–46—*cont.*

Number of works.	Name of works.	Financial results of the year 1945–46. Gross receipts (direct and indirect). (11)	Working expenses (direct and indirect). (12)	Net revenue. (13)	Percentage on capital outlay [column (7)]. (14)	Percentage on sum-at-charge [column (10)]. (15)	Interest. (16)	Net profit. (17)	Net loss. (18)	Area irrigated. (19)	Percentage of working expenses to receipts [columns (12) to (11)] (20)
		RS.	RS.	RS.			RS.	RS.	RS.	ACS.	
	A. IRRIGATION WORKS—*cont.*										
	2. UNPRODUCTIVE WORKS—*cont.*										
1	Kurnool-Cuddapah canal	3,68,927	1,72,600	1,96,327	0·84	0·28	10,49,696	..	8,53,369	88,289	46·78
2	Barur tank	21,366	8,679	12,687	2·81	1·35	19,264	..	6,577	5,385	40·62
3	Vallur anicut	4,563	1,445	3,118	4·09	2·28	3,346	..	228	5,622	31·69
4	Madras Water-supply and Irrigation system.	64,404	18,885	45,549	2·44	0·92	73,299	..	27,750	10,331	29·28
5	Pelandorai anicut system	63,432	25,738	37,694	5·45	3·23	28,949	8,745	..	15,420	40·58
6	Palar anicut system	1,28,145	3,91,818	−2,63,673	−10·59	−6·19	1,06,674	..	3,70,347	93,913	305·76
7	Chicacole minor rivers system	1,03,725	86,058	17,667	6·11	6·11	12,519	5,148	..	90,871	82·97
8	Muniyeru system	57,119	17,965	39,154	6·42	4·44	26,064	13,090	..	10,171	31·45
9	Dondapad tank	1,879	7,053	− 5,174	− 3·70	−1·41	5,615	..	10,789	438	375·36
10	Yerur tank	462	640	−178	− 0·28	−0·14	2,778	..	2,956	935	138·53
11	Sagileru system	− 4,408	2,596	− 7,004	− 1·51	0·52	20,120	..	27,124	3,700	−58·89
12	Atmakur tank	1,971	1,294	677	0·54	0·27	5,038	..	4,361	504	65·65
13	Jangamaheswarapuram tank	665	562	103	0·14	0·07	2,756	..	2,653	270	84·51
14	Anamasamudram-Beraperu tank	— 2,727	40	− 2,767	− 3·76	−1·36	3,226	..	5,993	896	−1·47
15	Hajipuram tank	876	783	93	0·03	0·015	12,545	..	12,452	585	89·38
16	Ponnalur tank	4,356	1,239	3,117	1·43	0·62	8,684	..	5,567	771	28·44
17	Markapur tank	4,982	3,321	1,661	1·28	0·62	5,602	..	3,941	1,403	66·66
18	Nagavalli river system	92,965	46,589	46,376	2·58	2·00	78,778	..	32,402	27,215	50·11
19	Venkatapuram tank	2,944	1,134	1,810	0·47	0·21	16,751	..	14,941	333	38·52
20	Bhavanasi tank	5,916	7,361	− 1,445	− 0·54	−0·26	11,448	..	12,893	617	124·42
21	Yellanur tank	3,121	2,891	230	0·09	0·04	10,764	..	10,534	551	92·63
22	Panjapatti reservoir	635	1,518	− 883	− 0·26	−0·09	14,750	..	15,633	..	239·06
23	Siddapur tank	6,951	2,639	4,312	0·54	0·25	35,597	..	31,285	972	37·97
24	Nagavaram anicut and supply channel	1,442	2,442	− 1,000	− 0·91	−0·46	4,828	..	5,828	999	169·35
25	Mopad reservoir system	59,595	10,939	48,656	2·00	1·04	1,04,081	..	55,425	7,007	18·44
26	Kanniyampalayam anicut	2,698	815	1,883	1·70	0·69	4,825	..	2,942	442	30·21
27	Tholudur reservoir project	1,44,133	51,837	92,296	3·52	2·21	1,06,652	..	14,356	25,543	35·96
28	Tippayapalem project	2,673	1,909	764	0·13	0·09	25,480	..	24,716	377	71·42
29	Basavannah channel	1,04,169	14,790	89,379	15·15	8·23	26,230	63,149	..	15,955	14·20
30	Duvvaleru project	34	3,100	− 3,066	− 2·08	− 1·58	6,599	..	9,665	..	9117·65
31	Uduthorahalla scheme	..	..	..	..	..	6,252	..	6,252	..	..
32	Mahadevapuram tank project	..	..	..	..	..	609	..	609	..	..
33	Tungabhadra project	..	..	..	..	..	27,919	..	27,919	..	..
	Total, A. Irrigation Works—2. Unproductive Works	12,47,013	8,88,650	3,58,363	0·83	0·33	18,67,738	..	15,09,375	4,09,515	71·26
	Total, A. Irrigation Works	1,86,04,065	74,61,304	1,11,42,761	5·61	3·67	85,31,201	26,11,560	..	49,44,228	40·11
	B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.										
	2. UNPRODUCTIVE WORKS.										
1	Vedaranyam canal	1,054	5,327	− 4,273	−3·13	−0·45	5,971	..	10,244	..	504·25
2	Buckingham canal	1,37,043	5,07,086	− 3,70,043	−3·86	−0·99	4,07,767	..	7,77,810	..	370·27
	Total, B. Navigation, etc. Works—2. Unproductive Works	1,38,097	5,12,413	− 3,74,316	−3·85	−0·97	4,13,738	..	7,88,054	..	371·05
	Total, B. Navigation, etc. Works	1,38,097	5,12,413	− 3,74,316	−3·85	−0·97	4,13,738	[illegible]	7,88,054	[illegible]	371·05

C-III.—Demands and Realizations during the year 1945–46 in the Madras Presidency—Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept.

Serial number and works or systems.	Balance of demands unrealized at the commencement of the year.	Demand for the year.	Total.	Deduct remissions including cash refunds.	Net total.	Deduct amount unrealized at the close of the year.	Actual total receipts of the year.	Deduct share due to old irrigation.	Net amount due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		RS.	RS.	RS.	RS.		RS.	RS.	RS.
A. IRRIGATION WORKS.									
1. PRODUCTIVE WORKS.									
1 Cauvery delta system	..	53,35,229	53,35,229	90,634	54,25,863	..	54,25,863	37,86,987	16,38,876
2 Srivaikuntam anicut system	..	21,40,447	21,40,447	1,725	2,42,172	..	2,42,172	79,000	1,63,172
3 Godavari delta system	..	31,92,857	31,92,857	17,38,952	49,31,809	..	49,31,809	1,24,000	48,07,809
4 Mehamattur anicut system	..	25,348	25,348	627	25,975	..	25,975	4,000	21,975
5 Thadapalli channel system	..	1,75,413	1,75,413	12	1,75,425	..	1,75,425	76,000	99,425
6 Kalingarayan channel system	..	1,41,880	1,41,880	212	1,42,092	..	1,42,092	85,000	57,092
7 Vriddhachalam anicut system	..	45,988	45,988	1,443	47,431	..	47,431	8,500	38,931
8 Chembrambakkam tank system	..	51,942	51,942	5,441	57,383	..	57,383	16,000	41,383
9 Marudur anicut system	..	2,12,955	2,12,955	462	2,13,417	..	2,13,417	1,15,000	98,417
10 Pennar river canals system	..	8,78,804	8,78,804	15,474	8,94,278	..	8,94,278	2,56,000	6,38,278
11 Arkenkota channel system	..	42,241	42,241	..	42,241	..	42,241	19,000	23,241
12 Tirukkoyilur anicut system	..	1,41,796	1,41,796	566	1,42,362	..	1,42,362	60,000	82,362
13 Shatiatope anicut system	..	1,74,940	1,74,940	1,108	1,76,048	..	1,76,048	20,000	1,56,048
14 Cheyyar anicut system	..	1,12,346	1,12,346	3,051	1,15,397	..	1,15,397	39,000	76,397
15 Cumbum tank system	..	27,641	27,641	4,213	31,854	..	31,854	30,000	1,854
16 Poincy anicut system	..	34,567	34,567	41,395	75,962	..	75,962	38,100	37,862
17 Periyar project system	..	11,56,426	11,56,426	6,241	11,62,667	..	11,62,667	2,04,000	9,58,667
18 Kistna delta system	..	43,49,246	43,49,246	10,05,823	53,55,069	..	53,55,069	71,000	52,84,069
19 Nandiyar channel system	..	34,631	34,631	457	35,088	..	35,088	17,000	18,088
20 Lower Coleroon anicut system	..	6,55,439	6,55,439	2,589	6,58,028	..	6,58,028	1,55,000	5,03,028
21 Kistna East Bank canal extension scheme	..	5,43,340	5,43,340	93,008	6,66,348	..	6,36,348	20,300	6,16,048
22 Polavaram Island project	..	1,15,272	1,15,272	3,745	1,19,017	..	1,19,017	..	1,19,017
23 Cauvery-Mettur project	..	17,31,229	17,31,229	64,113	17,95,342	..	17,95,342	99,971	16,95,371
24 Kattalai scheme	..	4,31,202	4,31,202	2,340	4,33,642	..	4,33,642	2,54,000	1,79,642
Total, A. Irrigation Works—1. Productive Works	..	1,88,43,279	1,88,43,279	40,91,631	2,29,34,910	..	2,29,34,910	55,77,858	1,73,57,052
2. UNPRODUCTIVE WORKS.									
1 Kurnool-Cuddapah canal	..	4,04,151	4,04,151	647	4,04,799	..	4,04,799	35,872	3,68,927
2 Barur tank	..	26,562	26,562	704	27,266	..	27,266	5,900	21,366
3 Vallur anicut system	..	8,931	8,931	632	9,563	..	9,563	5,000	4,563
4 Madras water-supply and irrigation system	..	74,937	74,937	467	75,404	..	75,404	11,000	64,404
5 Pelandorai anicut system	..	64,834	64,834	1,605	66,432	..	66,432	3,000	63,432
6 Palar anicut system	..	1,41,394	1,41,394	1,11,751	2,63,145	..	2,53,145	1,25,000	1,28,145
7 Chicacole minor rivers system	..	1,95,756	1,95,756	2,969	1,98,725	..	1,98,725	95,000	1,03,725
8 Muniyeru anicut system	..	56,935	56,935	2,684	59,619	..	59,619	2,500	57,119
9 Dondapad tank	..	1,879	1,879	..	1,879	..	1,879	..	1,879
10 Yerur tank	..	3,653	3,653	2,766	887	..	887	425	462
11 Sagileru system	..	9,753	9,753	3,639	13,392	..	13,392	17,800	— 4,408

C-III.—Demands and Realizations during the year 1945–46 in the Madras Presidency—Irrigation, Navigation, Embankment and Drainage Works (classed as " Productive " and " Unproductive ") for which Capital and Revenue Accounts are kept—*cont.*

Serial number and works or systems.	Balance of demands unrealized at the commencement of the year.	Demand for the year.	Total.	Deduct remissions including cash refunds.	Net total.	Deduct amount unrealized at the close of the year.	Actual total receipts of the year.	Deduct share due to old irrigation.	Net amount due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		RS.	RS.	RS.	RS.		RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*									
2. UNPRODUCTIVE WORKS—*cont.*									
12 Atmakur tank	..	7,096	7,096	275	1,971	..	1,971	..	1,971
13 Jangamaheswarapuram tank	..	1,165	1,165	..	1,165	..	1,165	500	665
14 Anamasamudram-Beraperu tank	..	3,080	3,080	3,007	873	..	873	3,600	—2,727
15 Hajipuram tank	..	2,643	2,643	1,767	876	..	876	..	876
16 [illegible] tank	..	4,356	4,356	..	4,356	..	4,356	..	4,356
17 Markapur tank	..	7,089	7,089	23	7,112	..	7,112	2,130	4,982
18 Nagavalli river system	..	1,28,769	1,28,769	1,596	1,30,365	..	1,30,365	37,400	92,965
19 Venkatapuram tank	..	2,944	2,944	..	2,944	..	2,944	..	2,944
20 Bhavanasi tank	..	5,916	5,916	..	5,916	..	5,916	..	5,916
21 Yellanur tank	..	2,647	2,647	474	3,121	..	3,121	..	3,121
22 Panjapatti reservoir project	..	635	635	..	635	..	635	..	635
23 Siddapur tank	..	5,558	5,558	1,393	6,951	..	6,951	..	6,951
24 Nagavaram anicut and supply channel	..	3,698	3,698	..	3,698	..	3,698	2,256	1,442
25 Mopad reservoir system	..	60 028	60.028	..	60,028	..	60,028	433	59,595
26 Kanniyampalaiyam anicut	..	2,698	2,698	..	2,698	..	2,[illegible]98	..	2,698
27 Tholudur reservoir system	..	49,812	49,812	4,911	1,54,723	..	1,54,723	10,590	1,44,133
28 Tippayapalem project	..	2,673	2,673	..	2,673	..	2,673	..	2,673
29 Basavanna channel	..	99,651	99,651	4,518	1,04,169	..	1,04,169	..	1,04,169
30 Duvvaleru schem	..	..	..	..	..	..	34	..	34
Total, A. Irrigation Works—2. Unproductive Works.	..	14,56,491	14,56,491	1,48,928	16,05,419	..	16,05,419	3,58,406	12,47,013
Total, A. Irrigation Works	..	2,02,99,770	2,02,99,770	42,40,559	2,45,40,329	..	2,45,40,329	59,36,264	1,86,04,065
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.									
2. UNPRODUCTIVE WORKS.									
1 Vedaranniyam canal	..	1,054	1,054	..	1,054	..	1,054	..	1,054
2 Buckingham canal	..	1,37 043	1,37,043	..	1,37,043	..	1,37,043	..	1,37,043
Total, B. Navigation, etc., Works—2. Unproductive Works.	..	1,38,097	1,38,097	..	1,38,097	..	1,38,097	..	1,38,097
Total, B. Navigation, etc., Works	..	1,38,097	1,38,097	..	1,38,097	..	1,38,097	..	1,38,097
Total, Construction of Irrigation, etc., Works	..	2,04,37,867	2,04,37,867	42,40,559	2,46,78,426	..	2,46,78,426	59,36,264	1,87,42,162

C-IV.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46 based on the assessment for the year.

Works or systems.	Capital outlay (direct and indirect) to end of the year.	Revenue assessed during the year. — Direct revenue. — Owner's rates.	Plantations.	Navigation.	Miscellaneous.	Total.	Indirect revenue and land revenue due to operations of canal.	Less refunds of revenue.	Grand total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. IRRIGATION WORKS.	RS.		RS.	RS.	RS.	RS.	RS.	RS.	RS.
1. PRODUCTIVE WORKS.									
1 Cauvery delta system	87,00,931	..	23,409	6,110	13,223	42,742	53,83,489	368	54,25,863
2 Srivaikuntam anicut system	17,75,063	..	4,018	..	7,520	11,538	2,30,712	78	2,42,172
3 Godavari delta system	2,09,97,012	..	4,260	2,87,419	75,675	3,67,354	45,75,437	10,982	49,31,809
4 Mehamattur anicut system	87,184	..	91	..	72	163	25,837	25	25,975
5 Thadepalli channel system	1,77,446	..	..	..	3,229	3,229	1,72,303	107	1,75,425
6 Kalingarayan channel system	1,80,486	..	..	..	4,711	4,711	1,37,514	133	1,42,092
7 Vriddhachalam anicut system	1,08,204	..	944	..	22	966	46,465	..	47,431
8 Chembrambakkam tank system	7,64,143	..	..	..	705	705	58,290	1,612	57,383
9 Marudur anicut system	60,122	..	279	..	3,237	3,516	2,09,901	..	2,13.417
10 Pennar river canals system	70,62,724	..	94	800	5,647	6,541	8,87,837	100	8,94,278
11 Arkenkota channel system	1,44,445	..	..	..	1,582	1,582	40,659	..	42,241
12 Tirukkoyilur anicut system	3,99,190	..	1,000	..	748	1,748	1,40,614	..	1,42,362
13 Shatiatope anicut system	10,89,561	..	563	11	304	878	1,75,170	..	1,76,048
14 Cheyyar anicut system	5,39,999	..	247	..	1,633	1,880	1.13,517	..	1,15,397
15 Cumbum tank system	86,373	..	..	..	..	..	31,854	..	31,854
16 Poiney anicut system	3,03.918	..	100	..	155	255	75,707		75,962
17 Periyar system	1,08,35,654	..	6,572	90	18,494	25,156	11,37,994	483	11,62,667
18 Kistna delta system	2,26,88,532	..	7,828	2,09 187	1,16,416	3,33,431	50.27,442	5,804	53,55,069
19 Nandiyar channel system	65.715	..	886	31	84	1,001	34,087	..	35,088
20 Lower Coleroon anicut system	30.01,669	..	5,663	166	7,440	13,269	6,44,861	102	6,58,028
21 Kistna east bank canal extension system ..	58,52,861	..	..	2,115	19,184	21,299	6,15,224	175	6,36,348
22 Polavaram island system	17,03,913	..	276	87	885	1,248	1,17,769	..	1,19,017
23 Cauvery-Mettur system	6,45,62,405	..	9,378	14	1,10,445	1,19,837	16,75,692	187	17,95,342
24 Kattalai system	41,52,183	..	7,063	146	2,358	9,567	4,24,156	81	4,33,642
Total, A. Irrigation Works—1. Productive Works.	15,53,39,733	..	72,671	5,06,176	3,93,769	9,72,616	2,19,82,531	20,237	2,29,34,910
2. UNPRODUCTIVE WORKS.									
1 Kurnool-Cuddapah canal	2,34,01,0[illegible]2	..	1,913	204	6,743	8,860	3,96,076	137	4,04,799
2 Barur tank	4,52,037	..	2,483	..	71	2,554	24,733	21	27,266
3 Vallur anicut	76,282	..	..	..	285	285	9,2[illegible]8	..	9,563
4 Madras water-supply and irrigation system ..	18,68,918	..	..	..	50,873	50,873	24,531	..	75,404
5 Pelandorai anicut system	6,92,074	..	1,757	..	512	2,269	64,224	61	66,432
6 Palar anicut system	24,89,275	..	789	..	6,316	7,105	2,46,040	..	2,53,145
7 Chicacole minor rivers system	2,89,226	..	..	..	647	647	1,98,078	..	1,98,725

C-IV.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46 based on the assessment for the year—*cont.*

Works or systems.	Capital outlay (direct and indirect) to end of the year.	Revenue assessed during the year. Direct revenue. Owner's rates.	Plantations.	Navigation.	Miscellaneous.	Total.	Indirect revenue and land revenue due to operations of canal.	Less refunds of revenue.	Grand total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	RS.		RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*									
2. UNPRODUCTIVE WORKS—*cont.*									
8 Muniyeru system	6,09,601	..	669	..	2,880	3,549	56,070	..	59,619
9 Dondapad tank	1,40,004	..	..	..	..	..	1,879	..	8,879
10 Yerur tank	63,353	..	..	..	..	..	887	..	887
11 Sagileru system	4,64,727	..	6	..	140	146	13,246	..	13,392
12 Atmakur tank	1,25,403	..	10	..	190	200	1,771	..	1,971
13 Jangamaheswarapuram tank	71,664	..	..	..	..	..	1,165	..	1,165
14 Anamasamudram-Beraperu tank	73,573	..	..	..	..	..	873	..	873
15 Hajipuram tank	3,11,883	..	..	..	..	..	876	..	876
16 Ponnalur tank	2,18,649	..	..	..	..	..	4,356	..	4,356
17 Markapur tank	1,29,340	..	..	..	44	44	7,068	..	7,112
18 Nagavalli river system	17,99,243	..	..	..	2,336	2,336	1,28,029	..	1,30,369
19 Venkatapuram tank	3,84,921	..	..	..	1	1	2,943	..	2,944
20 Bhavanasi tank	2,65,491	..	..	..	..	..	5,916	..	5,916
21 Yellanur tank	2,69,707	..	..	..	..	..	3,121	..	3,121
22 Panjapatti reservoir system	3,39,276	..	..	..	635	635	..	..	635
23 Siddapur tank	8,04,486	..	..	..	5	5	6,946	..	6,951
24 Nagavaram anicut and supply channel	1,09,890	..	..	..	..	..	3,698	..	3,698
25 Mopad reservoir system	24,28,[illegible]01	..	..	..	141	141	59,887	..	60,028
26 Kanniyampalayam anicut	1,11,074	..	..	..	..	..	2,698	..	2,698
27 Toludur reservoir system	26,22,781	..	1,216	..	1,884	3,100	1,51,665	42	1,54,723
28 Tippayapalem project	5,84,216	..	..	..	1	1	2,672	..	2,673
29 Basavanna channel	5,89,780	..	114	..	..	114	1,04,055	..	1,04,169
30 Duvvaleru project	1,47,291	..	..	..	34	34	..	..	34
31 [illegible]duthorahalla scheme	1,52,183	..	..	..	..	..	..	..	..
32 Mahadevapuram tank project	14,425	..	..	..	..	..	..	..	..
33 Tungabhadra project	12,79,823	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works.	4,33,79,[illegible]79	..	8,957	204	73,738	82,899	15,22,781	261	16,05,419
Total, A. Irrigation Works ..	19,87,19,712	..	81,628	5,06,380	4,67,507	10,55,515	2,35,05,312	20,498	2,45,40,329
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.									
2. UNPRODUCTIVE WORKS.									
1 Vedaranniyam canal	1,36,432	..	15	1,039	..	1,054	..	..	1,054
2 Buckingham canal	95,88,262	..	1,135	1,26,335	10,476	1,37,946	..	903	1,37,043
Total, B. Navigation, etc., Works—2. Unproductive Works.	97,24,694	..	1,150	1,27,374	10,476	1,39,000	..	903	1,38,097
Total, B. Navigation, etc., Works ..	97,24,694	..	1,150	1,27,374	10,476	1,39,000	..	903	1,38,097
Total, Construction of Irrigation, etc., Works	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46 based on the [illegible] assessment for the year—*cont.*

Works or systems.	Revenue assessed during the year—*cont.* Deduct share due to old irrigation.	Total revenue due to improvements.	Working expenses. Total charges (direct and indirect).	Deduct old maintenance charges.	Total working expenses on improvements.	Net revenue of the year. Total.	Due to improvements.	Percentage on capital outlay to end of the year (improvements only).
	(11) RS.	(12) RS.	(13) RS.	(14) RS.	(15) RS.	(16) RS.	(17) RS.	(18) RS.
A. IRRIGATION WORKS.								
1. PRODUCTIVE WORKS.								
1 Cauvery delta system	37,86,987	16,38,876	14,36,465	10,10,804	4,25,661	39,89,398	12,13,215	13·94
2 Srivaikuntam anicut system	79,000	1,63,172	1,37,504	7,633	1,29,871	1,04,668	33,301	1·88
3 Godavari delta system	1,24,000	48,07,809	22,72,808	..	22,72,808	26,59,001	25,35,001	12·07
4 Mehamattur anicut system	4,000	21,975	10,146	840	9,306	15,829	12,669	14·53
5 Thadepalli channel system	76,000	99,425	28,427	4,511	23,916	1,46,998	75,509	42·55
6 Kalingarayan channel system	85,000	57,092	29,490	5,044	24,446	1,12,602	32,646	18·09
7 Vriddhachalam anicut system	8,500	38,931	13,408	..	13,408	34,023	25,523	23·59
8 Chembrambakkam tank system	16,000	41,383	18,199	5,938	12,261	39,184	29,122	3·81
9 Marudur anicut system	1,15,000	98,417	35,835	6,452	29,383	1,77,582	69,034	115·88
10 Pennar river canals system	2,56,000	6,38,278	2,12,312	32,720	1,79,592	6,81,966	4,58,686	6·49
11 Arkenkota channel system	19,000	23,241	9,650	1,129	8,521	32,591	14,720	10·19
12 Tirukkoyilur anicut system	60,000	82,362	1,08,335	6,519	1,01,816	34,027	— 19,454	— 4·87
13 Shatiatope anicut system	20,000	1,56,048	49,131	2,174	46,957	1,26,917	1,09,091	10·01
14 Cheyyar anicut system	39,000	76,397	87,433	4,052	83,381	27,964	— 6,984	— 1·29
15 Cumbum tank system	30,000	1,854	5,499	1,183	4,316	26,355	— 2,462	— 2·85
16 Poiney anicut system	38,100	37,862	75,770	3,961	71,809	192	— 33,947	— 11·17
17 Periyar system	2,04,000	9,58,667	3,81,639	35,555	3,46,084	7,81,028	6,12,583	5·65
18 Kistna delta system	71,000	52,84,069	17,27,642	..	17,27,642	36,27,427	35,56,427	15·67
19 Nandiyar channel system	17,000	18,088	12,124	4,239	7,885	22,964	10,203	15·53
20 Lower Coleroon anicut system	1,55,000	5,03,028	2,09,952	9,624	2,00,328	4,48,076	3,02,700	10·08
21 Kistna East Bank canal extension scheme	20,300	6,16,048	1,77,191	15,424	1,61,767	4,59,157	4,54,281	7·76
22 Polavaram island project	..	1,19,017	86,210	..	86,210	32,807	32,807	1·93
23 Cauvery-Mettur project	99,971	16,95,371	5,77,855	15,069	5,62,786	12,17,487	11,32,585	1·75
24 Kattalai scheme	2,54,000	1,79,642	1,06,610	64,110	42,500	3,27,032	1,37,142	3·30
Total, A. Irrigation Works—1. Productive Works.	55,77,858	1,73,57,052	78,09,635	12,36,981	65,72,654	1,51,25,275	1,07,84,398	6·94
2. UNPRODUCTIVE WORKS.								
1 Kurnool-Cuddapah canal	35,872	3,68,927	1,77,062	4,462	1,72,600	2,27,737	1,96,327	0·84
2 Barur tank	5,900	21,366	8,679	..	8,679	18,587	12,687	2·81
3 Vallur anicut system	5,000	4,563	2,883	1,438	1,445	6,680	3,118	4·09
4 Madras water-supply and irrigation system	11,000	64,404	23,049	4,194	18,855	52,355	45,549	2·44
5 Pelandorai anicut system	3,000	63,432	25,892	154	25,738	40,540	37,694	5·45
6 Palar anicut system	1,25,000	1,28,145	3,95,722	3,904	3,91,818	— 1,42,577	— 2,63,673	— 10·59
7 Chicacole minor rivers system	95,000	1,03,725	91,487	5,429	86,058	1,07,238	17,667	6·11
8 Muniyeru system	2,500	57,119	18,246	281	17,965	41,373	39,154	6·42
9 Dondapad tank	..	1,879	7,053	..	7,053	— 5,174	— 5,174	— 3·70
10 Yerur tank	425	462	640	..	640	247	— 178	— 0·28
11 Sagileru system	17,800	— 4,408	5,857	3,261	2,596	7,535	— 7,004	— 1·51
12 Atmakur tank	..	1,971	1,294	..	1,294	677	677	0·54

C-IV.—Statement showing the Financial Results of Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1945–46 based on the assessment for the year—*cont.*

Works or systems.	Revenue assessed during the year—*cont.*		Working expenses.			Net revenue of the year.		Percentage on capital outlay to end of the year (improvements only).
	Deduct share due to old irrigation.	Total revenue due to improvements.	Total charges (direct and indirect).	Deduct old maintenance charges.	Total working expenses on improvements.	Total.	Due to improvements.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
13 Jangamaheswarapuram tank	500	665	562	..	562	603	103	0·14
14 Anamasamudram Beraperu tank	3,600	— 2,727	747	707	40	126	— 2,767	— 3·76
15 Hajipuram tank	..	876	783	..	783	93	93	0·03
16 Ponnalur tank	..	4,356	1,239	..	1,239	3,117	3,117	1·43
17 Markapur tank	2,130	4,982	3,682	361	3,321	3,430	1,661	1·28
18 Nagavalli river system	37,400	92,965	49,964	3,375	46,589	80,401	46,376	2·58
19 Venkatapuram tank	..	2,944	1,134	..	1,134	1,810	1,810	0·47
20 Bhavanasi tank	..	5,916	7,361	..	7,361	— 1,445	— 1,445	— 0·54
21 Yellanur tank	..	3,121	2,891	..	2,891	230	230	0·09
22 Panjapatti reservoir project	..	635	1,518	..	1,518	— 883	— 883	— 0·26
23 Siddapur tank	..	6,951	2,639	..	2,639	4,312	4,312	0·54
24 Nagavaram anicut and supply channel	2,256	1,442	2,442	..	2,442	1,256	— 1,000	— 0·91
25 Mopad reservoir system	433	59,595	10,939	..	10,939	49,089	48,656	2·00
26 Kanniyampalayam anicut	..	2,698	815	..	815	1,883	1,883	1·70
27 Tholudur reservoir project	10,590	1,44,133	51,837	..	51,837	1,02,886	92,296	3·52
28 Tippayapalem project	..	2,673	1,909	..	1,909	764	764	0·13
29 Basavanna channel	..	1,04,169	14,790	..	14,790	89,379	89,379	15·15
30 Duvvaleru project	..	34	3,100	..	3,100	— 3,066	— 3,066	— 2·08
31 Uduthorihalla scheme	..	..	..	..	..	..	..	..
32 Mahadevapura tank project	..	..	..	..	..	..	..	..
33 Tungabhadra project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works.	3,58,406	12,47,013	9,16,216	27,566	8,88,650	6,89,203	3,58,363	0·83
Total, A. Irrigation Works ..	59,36,264	1,86,04,065	87,25,851	12,64,547	74,61,304	1,58,14,478	1,11,42,761	5·61
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.								
2. UNPRODUCTIVE WORKS.								
1 Vedaranniyam canal	..	1,054	5,327	..	5,327	— 4,273	— 4,273	— 3·13
2 Buckingham canal	..	1,37,043	5,07,086	..	5,07,086	— 3,70,043	— 3,70,043	— 3·86
Total, B. Navigation, etc., Works—2. Unproductive Works.	..	1,38,097	5,12,413	..	5,12,413	— 3,74,316	— 3,74,316	— 3·85
Total, B. Navigation, etc., Works ..	..	1,38,097	5,12,413	..	5,12,413	— 3,74,316	— 3,74,316	— 3·85
Total, Construction of Irrigation, etc., Works ..	59,36,264	1,87,42,162	92,38,264	12,64,547	79,73,717	1,54,40,162	1,07,68,445	5·17

... Canals in the Madras Province during the year ...

(1)		Godavari canals. (2)	Kistna canals. (3)	Kistna East Bank canal. (4)	Kurnool-Cuddapah canal. (5)	Buckingham canal. (6)	West Coast canal. (7)	Dummagudem canal. (8)	Vedaranniyam canal. (9)	Total. (10)
Length of canals open for navigation	Miles.	491⅝	384½	35½	75	262	121	2	31¾	1,402¼
Receipts—										
Tolls	Rs.	..	..	..	..	..	34,720	..	..	..
Testing fees	,,	32	453	11	..	19	..	..	..	..
Annual licence fees	,,	1,07,375 {	62,829	380	..	83,162	..	1,780	975	..
Six weeks' licence fees	,,		32,592	471	..		..	82	7	..
Registration fees	,,	24	..	..	..	..	..	..	..	..
Wharfage fees	,,	16,337	35,358	814	..	20,689	..	..	..	..
Demurrage fees	,,	137	1,317	47	..	179	..	..	..	..
Raft fees	,,	18,464	1,381	..	..	..	..	4,487	54	..
Numbering fees	,,	215	..	..	..	1,327	..	..	2	..
Fines	,,	..	..	..	..	16	..	..	..	..
Ground rents	,,	21,871	55,137	392	204	..	..	..	15	..
Miscellaneous	,,	..	768	..	..	14,226	10,723	..	..	..
Refunds	,,	9	− 434	..	..	..	..	..	..	..
Government boats and steamers	,,	36,316	16,863	..	..	..	..	..	..	..
Boat rent	,,	435	345	..	..	218	..	..	..	..
Other refunds	,,	201	..	..	..	..	..	..	..	..
Duplicate fees	,,	69	..	..	..	..	..	..	..	..
Hire on punts	,,	..	249	..	..	..	..	..	..	..
Berm rent	,,	..	..	..	..	17,796	..	..	..	..
Total, Receipts	,,	2,01,485	2,06,863	2,115	204	1,36,729	55,443	6,349	1,053	..
Maintenance charges including navigation establishment	,,	2,35,625	3,07,035	24,767	..	4,59,546	31,816	4,059	4,031	..
Net revenue		− 34,140	−1,00,172	−22,652	204	−3,22,817	23,627	2,290	− 2,978	..
Total number of boats plying, cargo		1,11,051 }	7,165 {	423	..	..	..	24	107	..
Total number of boats plying, passengers		42,063 }		53	..	..	..			
Total tonnage, cargo boats	Tons.	2,088,815 {	..	23,563	..	..	..	31,091	5,498	..
Total tonnage, passenger boats			435,424	4,171	..	..	..	..	..	..
Ton mileage, up	,,	8,433,118 {	6,180,494	504,478	..	..	..	886¼	29,664	..
Ton mileage, down			12,241,069	733,782	..	8,765,580	..	160,577½	81,784	..
Total		8,433,118	18,421,563	1,238,260	..	8,765,580		161,464	..	..
Estimated value of cargoes, up	Rs.	25,91,33,112	16,06,84,776	62,00,163	..	..	7,49,86,716	1,83,53,048	18,31,817	..
Estimated value of cargoes, down										
Total		25,91,33,112	16,06,84,776	62,00,163	..	..	7,49,86,716	1,83,53,048	18,31,817	..
Number of passengers		..	1,47,444	46,540	..	77,070	..	..	..	..
Rafts, tons, up		..	..	..	..	..	..	3,151	..	..
Rafts, tons, down		222,500	7,671	18	..	..	..	6,302	..	
Total		..	..	..	..	..	..	9,453	..	..
Estimated value of cargoes on rafts	Rs.	35,950	..	4,434	..	29,25,71,959	..	15,75,500	..	..
Tollage on boats, per ton, per mile	,,	..	..	..	..	..	..	..	..	..
Tollage on rafts, per 100 sq.ft.	,,	..	..	..	..	..	..	..	..	..
Timber	,,	..	..	..	..	..	..	..	..	..
Bamboo	,,	..	..	..	..	..	..	..	..	..

D-II.—Description and Quantity of Goods, etc., carried on the Principal Canals in the Madras Province during the year 1945–46.

Description.	Godavari canals. Total, Government and private. Quantity. Up.	Down.	Total.	Value.	Godavari canals. Private. Quantity.	Value.	Kistna canals. Total, Government and private. Quantity. Up.	Down.	Total.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Boat traffic.	TONS.	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.
Cotton, raw and manufactured ..	450	395	845	6,68,500	845	6,68,500	156	405	561	10,07,636
Woollen goods	140	417	457	32,63,700	457	32,63,700	..	2	2	79,608
Dyes and tans	194	800	994	68,85,000	994	68,85,000	23	4	27	1,40,700
Rice and paddy	70,590	19,706	90,296	2,11,45,760	90,296	2,11,45,760	61,631	29,598	91,229	2,06,47,391
Other foodgrains	34,691	6,558	41,249	1,64,99,600	41,249	1,64,99,600	4,342	6,185	10,527	60,84,606
Hides and skins	56	143	199	6,56,500	199	6,56,500	611	334	945	22,74,065
Liquors	78	514	592	32,56,000	592	32,56,000	1,798	801	2,599	1,23,16,661
Metals	1,066	745	1,811	34,36,350	1,811	34,36,350	150	322	472	17,31,294
Oils	10,970	6,561	17,531	3,85,68,200	17,531	3,85,68,200	1,578	3,394½	4,972½	1,40,42,340
Oil-seeds	4,867	5,051½	9,918½	1,98,37,000	9,918½	1,98,37,000	7,140	20,649	27,789	1,94,52,300
Provisions	50,685	16,976	67,661	10,14,91,500	67,661	10,14,91,500	21,501	24,222½	45,723½	5,42,73,795
Salt	17,145	1,370	18,515	14,81,280	18,515	14,81,280	1,211	234	1,445	1,66,175
Spices	128	521	649	37,64,200	649	37,64,200	..	..	..	..
Sugar and jaggery	4,880	10,817	15,697	47,66,140	15,697	47,66,140	3,151	805	3,956	20,72,294
Tobacco	2,178	4,513	6,691	1,07,63,700	6,691	1,07,63,700	1,837	1,534½	3,371½	81,37,862
Building materials	113,960	190,435½	304,395½	19,47,562½	304,395½	19,47,562½	17,123	105,268	122,391	20,42,683
Miscellaneous goods	36,096½	23,871	59,967½	3,34,96,860	59,967½	3,34,96,860	22,499	45,773	68,272	81,70,575
imber	3,309	41,033	44,342	2,66,05,200	44,342	2,66,05,200	4,533½	1,533	6,066½	30,51,450
irewood	27,183	11,106	38,289	24,88,785	38,289	24,88,785	11,300	4,384	15,684	5,64,624
amboos	202	23,583	23,785	47,57,000	23,785	47,57,000	4,683	2,216	6,899	11,38,335
oal and coke	481	144	625	15,62,250	625	15,62,250	432	18,874	19,306	28,95,900
ute	85	214	299	2,46,675	299	2,46,675	..	72	72	3,5136
reasure	..	..	..	..	..	..	..	..	..	..
erosene oil	..	..	..	..	..	..	..	..	..	..
otton seeds	..	..	..	..	..	..	..	..	..	..
oles	..	..	..	..	..	..	..	..	..	..
antlings	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	379,434½	324,628	744,808½	27,75,47,762½	744,808½	27,75,47,762½	165,699½	266,609½	432,310	16,03,25,430
Raft traffic.										
mber in logs	40	40,329	40,369	2,01,84,500	40,369	2,01,84,500	2,208	3,280	5,488	23,87,280
uared timber	..	3,175	3,175	6,35,000	3,175	6,35,000	..	..	..	..
epers, broad gauge	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	..	20	20	9,000	20	9,000	..	..	..	..
antlings	..	15	15	4,950	15	4,950	..	575	575	2,13,900
oles	..	..	..	..	..	..	..	..	..	..
rewood	..	24	24	1,440	24	1,440	..	..	..	..
amboos and reeds	24	22,780	22,804	45,60,800	22,804	45,60,800	1,173	435	1,608	2,44,416
Total, Raft traffic ..	64	66,343	66,407	2,53,95,690	66,407	2,53,95,690	3,381	4,290	7,671	28,45,596
Grand total ..	379,498½	390,971	811,215½	30,29,43,412	811,215½	30,29,43,412	169,080½	270,899½	439,981	16,31,71,026

O-II.—Description and Quantity of Goods, etc., carried on the Principal Canals in the Madras Province during the year 1945–46—*cont.*

Description	Kistna canals—*cont.* Private. Quantity. (12) TONS.	Kistna canals—*cont.* Private. Value. (13) RS.	Kistna East Bank canal. Total, Government and private. Quantity. Up. (14) TONS.	Down. (15) TONS.	Total. (16) TONS.	Value. (17) RS.	Kistna East Bank canal. Private. Quantity. (18) TONS.	Value. (19) RS.	Kurnool-Cuddapah canal. Total, Government and private. Quantity. Up. (20)	Down. (21)	Total. (22)	Value. (23)	Kurnool-Cuddapah canal. Private. Quantity. (24)	Value. (25)
Boat traffic.														
Cotton, raw and manufactured ..	561	10,07,636	..	..	..	..	..	..	..	..	..	..	..	..
Woollen goods	2	79,608	..	..	..	..	..	..	..	..	..	..	..	..
Dyes and tans	27	1,40,700	..	..	..	..	..	..	..	..	..	..	..	..
Rice and paddy	91,[illegible]9	2,06,47,391	15,285	135	15,420	34,24,240	15,420	34,24,240	..	..	..	..	..	..
Other foodgrains	10,527	60,[illegible]4,606	291	..	2[illegible]1	1,68,198	291	1,68,198	..	..	..	..	..	..
Hides and skins	945	22,74,065	12	..	12	28,380	12	28,380	..	..	..	..	..	..
Liquors	2,599	1,23,16,661	..	..	..	..	..	..	..	..	..	..	..	..
Metals	472	17,31,294	10	6	16	33,230	16	33,230	..	..	..	..	..	..
Oils	4,[illegible]72½	1,40,4[illegible],340	..	..	..	..	..	..	..	..	..	..	..	..
Oil-seeds	27,789	1,94,52,300	49	..	49	34,3[illegible]0	49	34,300	..	..	..	..	..	..
Provisions	45,723½	5,42,73,795	633	189	822	9,75,714	822	9,75,714	..	..	..	..	..	..
Salt	1,445	1,66,175	..	..	..	..	..	..	..	..	..	..	..	..
Spices	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sugar and jaggery	3,956	20,72,294	..	..	..	..	..	..	..	..	..	..	..	..
Tobacco	3,371½	81,37,862	583	..	583	11,27,949	583	11,27,949	..	..	..	..	..	..
Building materials	122,391	20,42,683	3	9,050	9,053	1,20,998	9,053	1,20,998	..	..	..	..	..	..
Miscellaneous goods	68,272	81,70,575	792	25	817	1,60,407	817	1,60,407	..	..	..	..	..	..
Timber	6,0,66½	30,51,450	34	25	59	29,677	59	29, 77	..	..	..	..	..	..
Firewood	15,684	5,64,624	130	..	130	4,680	130	4,680	..	..	..	..	..	..
Bamboos	6,899	11,38,335	..	..	..	..	..	..	..	..	..	..	..	..
Coal and coke	19,306	28,95,900	189	81	270	90,990	270	90,990	..	..	..	..	..	..
Jute	72	35,136	..	..	..	..	..	..	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic	4,32,310	16,03,25,430	18,011	9,511	27,522	61,98,763	27,522	61,98,763	..	..	..	..	..	..
Raft traffic.														
Timber in logs	5,488	23,87,280	..	6	6	2,610	6	2,610	..	..	..	..	..	..
Squared timber	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sleepers, broad gauge	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	575	2,13,900	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds	1,608	2,44,416	..	12	12	1,824	12	1,8[illegible]4	..	..	..	..	..	..
Total, Raft traffic ..	7,671	[illegible]8,45,596	..	18	18	4,434	18	4,434	..	..	..	..	..	..
Grand total ..	439,981	16,31,71,0[illegible]6	18,011	9,5[illegible]9	27,540	6[illegible],03,197	27,540	62,03,197	..	..	..	..	..	..

D-II.—Description and Quantity of Goods, etc., carried on the Principal Canals in the Madras Province during the year 1945-46—*cont.*

Description.	Buckingham canal.						West Coast canals.					
	Total, Government and private.				Private.		Total, Government and private.				Private.	
	Quantity.			Value.	Quantity.	Value.	Quantity.			Value.	Quantity.	Value.
	Up.	Down.	Total.				Up.	Down.	Total.			
	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
Boat traffic.	TONS.	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.	TONS.	RS.
Cotton, raw and manufactured ..	62	19	81	4,06,134	81	4,06,134	..	..	..	..	..	..
Woollen goods	..	..	..	..	..	..	..	170	170	10,85,960	170	10,85,960
Dyes and tans	..	..	..	..	..	..	..	..	..	..	..	..
Rice and paddy	52,157	9,141	61,298	1,34,66,700	61,289	1,34,66,700	4,588	27,214	31,802	1,00,76,078	31,802	1,00,76,078
Other foodgrains	22,946	2,876	25,822	1,90,04,992	25,8[illegible]2	1,90,04,992	1,536	4,744	6,280	33,28,400	6,280	33,28,400
Hides and skins	..	..	..	..	..	..	..	..	..	..	..	..
Liquors	522	..	522	28,71,000	522	28,71,000	3,485	25	3,501	42,75,960	3,501	42,75,960
Metals	2,005	3,986	5,991	2,57,61,300	5,991	2,57,61,300	393	224	617	12,09,516	617	12,09,516
Oils	548	2,688	3,236	58,24,800	3,236	58,24,800	2,833	581	3,414	55,75,062	3,414	55,75,062
Oil-seeds	14,149	13,900	28,049	1,68,29,400	28,049	1,68,29,406	4,490	6,239	10,729	69,09,476	10,729	69,09,476
Provisions	76,579	21,417	97,996	13,22,94,600	97,996	13,22,94,600	3,615	13,416	17,031	1,66,90,380	17,031	1,66,90,380
Salt	41,637	58,549	100,186	1,20,22,320	100,186	1,20,22,320	1,244	5,382	6,626	6,46,096	6,626	6,46,096
Spices	..	..	..	..	..	..	398	105	503	28,90,701	503	28,90,701
Sugar and jaggery	637	21,589	22,226	55,5[illegible],950	22,[illegible]26	55,57,950	..	6,242	6,[illegible]4[illegible]	24,29,152	6,242	24,29,152
Tobacco	15,276	2,044	17,320	3,11,76,000	17,320	3,11,76,000	2,962	3,108	6,070	90,32,160	6,070	90,32,160
Building materials	37,425	13,955	51,380	38,54,773	51,380	38,54,773	1,803	4,226	6,029	1,20,005	6,029	1,20,005
Miscellaneous goods	47,013	40,853	87,866	20,27,556	87,866	20,[illegible]7,556	16,215	49,250	64,465	1,12,56,123	64,465	1,12,56,[illegible]23
Timber	14,897	569	15,466	1,51,50,200	15,446	1,51,50,200	7.6	272	998	4,65,754	998	4,65,754
Firewood	65,149	1,143	62,292	20,55,052	62,292	20,55,052	988	28	1,016	36,576	1,016	36,576
Bamboos	50	53	103	39,140	103	39,140	..	386	386	43,232	386	43,232
Coal and coke	491	237	728	1,74,720	728	1,74,720	..	..	..	..	..	..
Jute	..	..	..	..	..	..	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	391,533	183,019	574,552	27,33,66,381	574,552	27,33,66,381	45,286	121,612	166,898	7,49,86,716	166,898	7,49,86,716
Raft traffic.												
Timber in logs	326	..	326	32,600	326	32,600	..	..	..	..	..	..
Sleeped timber	..	..	..	..	..	..	..	..	..	..	..	..
Do. broad gauge	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds	175	..	175	52,500	175	52,500	..	..	..	..	..	..
Total, Raft traffic ..	501	..	501	85,100	501	85,100	..	..	..	..	..	..
Grand total ..	392,034	183,019	575,053	27,34,51,481	575,053	27,34,51,481	45,286	121,612	166,898	7,49,86,716	166,898	7,49,86,716

D-II.—Description and Quantity of Goods, etc., carried on the Principal Canals in the Madras Province during the year 1945–46—*cont.*

Description.	Dummagudem canal. Total, Government and private. Quantity. Up. (38) TONS.	Down. (39) TONS.	Total. (40) TONS.	Value. (41) RS.	Private. Quantity. (42) TONS.	Value. (43) RS.	Vedaranniyam canal. Total, Government and private. Quantity. Up. (44) TONS.	Down. (45) TONS.	Total. (46) TONS.	Value. (47) RS.	Private. Quantity. (48) TONS.	Value. (49) RS.
Boat traffic.												
Cotton, raw and manufactured	3	1	4	20,900	4	20,900	2	17	19	25,460	19	25,460
Woollen goods	..	8	8	36,000	8	36,000	3	..	3	600	3	600
Dyes and tans	55	3	58	17,605	58	17,605	..	..	..	..	..	..
Rice and paddy	47	309	356	42,400	356	42,400	..	..	..	..	..	..
Other foodgrains	..	12	12	36,000	12	36,000	..	..	..	..	..	..
Hides and skins	13	..	13	71,500	13	71,500	..	..	..	..	..	..
Liquors	1	..	1	3,000	1	3,000	..	..	..	..	..	..
Metals	5	..	5	11,000	5	11,000	..	..	..	..	..	..
Oils	..	114½	114½	2,29,000	114½	2,29,000	8	7	15	14,700	15	14,700
Oil seeds	7	72	79	1,18,500	79	1,18,500	8	38	46	4,416	46	4,416
Provisions	252¾	..	252¾	20,220	252¾	20,220	249	..	249	14,31,003	249	14,31,003
Salt	..	..	..	..	..	..	..	..	..	..	..	..
Spices	34	..	34	9,520	34	9,520	..	4	4	4,568	4	4,568
Sugar and jaggery	393¾	..	393¼	6,69,375	393¼	6,69,375	14	46	60	2,465	60	2,465
Tobacco	..	..	..	..	..	..	957	4,145	5,102	1,95,805	5,102	1,95,805
Building materials	72½	27½	100	20,327	100	20,327	..	..	..	..	..	..
Miscellaneous goods	..	27,508	27,508	1,65,04,800	27,508	1,65,04,800	..	..	..	..	..	..
Timber	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	2,132	2,132	4,26,400	2,132	4,26,400	..	..	..	..	..	..
Bamboos	..	..	..	..	..	..	..	..	..	..	..	..
Coal and coke	..	20	20	16,500	20	16,500	..	..	..	..	..	..
Jute	..	..	..	..	..	..	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic	884	30,207	31,090½	1,82,53,047	31,090½	1,82,53,057	1,241	4,257	5,498	16,79,017	5,498	16,79,017
Raft traffic.												
Timber in logs	..	3,151	3,151	15,75,500	3,151	15,75,500	..	..	..	..	..	..
Squared timber	..	..	..	..	..	..	..	..	..	..	..	..
Sleepers, broad gauge	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds	..	..	..	..	..	..	..	..	..	..	..	..
Total, Raft traffic	..	3,151	3,151	15,75,500	3,151	15,75,500	..	..	..	..	..	..
Grand total	884	33,358	34,241½	1,98,28,547	34,241½	1,98,28,547	1,241	4,257	5,498	16,79,017	5,498	16,79,017

E-I.—Statement of area irrigated under Irrigation Works classed as Productive and Unproductive for which Capital and Revenue Accounts are kept in the Madras Province during the year 1945–46.

Name of canals.	Area charged as irrigated in acres.						
	First crop.		Second crop.		Total.	Both seasons.	Percentage of double cropped area [columns (4) and (5)] on the first crop area [columns (2) and (3)].
	Flow.	Lift.	Flow.	Lift.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Productive.							
1 Cauvery delta system ..	847,980	27,189	15°,030	5,098	1,038,297	16,724	18·64
2 Srivaikuntam anicut system.	24,018	1,070	10,789	1,476	37,353	1,759	48·69
3 Godavari delta system ..	845,753	23,111	319,021	16,215	1,204,100	16,877	38·58
4 Mehmattur anicut system.	4,609	71	153	..	4,833	69	3·27
5 Thadepalle channel	16,316	575	4,587	449	21,957	385	29·82
6 Kalingaroyan channel ..	9,995	2,501	7,845	2,467	22,808	2,123	83·21
7 Vriddhachalam anicut system.	9,780	330	409	5	10,524	117	4·09
8 Chembarambakkam tank ..	13,018	653	4,638	38	18,347	286	34·85
9 Marudur anicut system ..	16,988	288	9,793	334	27,403	554	58·61
10 Pennar river canals system.	160,338	4,396	3,964	226	168,924	1,277	2·54
11 Arkenkota channel ..	4,637	159	948	36	5,780	1	20·52
12 Tirukkoyilur anicut system..	28,188	1,300	5,288	2 9	35,055	614	18·88
13 Shatiatope anicut system ..	32,249	471	5,092	192	38,004	137	16·15
14 Cheyyar anicut system ..	19,428	621	10,641	369	31,059	343	54·92
15 Cumbum tank	5,422	114	386	52	5,974	908	7·91
16 Poiney anicut system ..	17,538	774	4,561	117	22,990	62	27·02
17 Periyar system	129,527	4,566	54,084	2,269	190,446	5,978	42·02
18 Kistna delta system ..	928,974	31,656	13,407	1,797	975,834	10,892	1·58
19 Nandiyar channel system ..	6,443	939	2,096	292	9,770	1,049	32·35
20 Lower Coleroon anicut system.	106,426	4,043	8,524	507	119,500	904	5·13
21 Kistna East Bank Canal extension scheme.	94,352	752	70	3	95,177	530	0·08
22 Polavaram Island project ..	14,322	86	7,549	5	21,962	31	52·48
23 Cauvery-Mettur project ..	129,088	8,917	45,042	4,594	187,641	9,508	35·97
24 Kattalai scheme	50,335	2,761	16,381	1,530	71,007	5,474	33·75
Unproductive.							
1 Kurnool-Cuddapah canal ..	76,424	1,310	8,215	408	86,357	1,852	11·09
2 Barur tank	3,893	175	794	60	4,922	574	20·94
3 Vallur anicut system ..	3,201	1,029	403	46	4,679	71	10·61
4 Madras water-supply and irrigation system.	6,463	291	2,080	206	9,040	163	33·85
5 Pelandorai anicut system ..	10,595	3,029	817	46	14,487	119	6·33
6 Palar anicut system	62,282	2,948	18,165	1,023	84,478	696	29·42
7 Chicacole minor rivers system.	77,007	2,805	5,372	1,452	86,636	88	8·55
8 Muniyeru anicut system ..	9,609	258	83	7	9,957	1	0·91
9 Dondapad tank	428	..	4	..	4 2	..	0·93
10 Yerur tank	317	4	109	..	430	..	33·96
11 Sagileru system	3,484	16	48	1	3,549	4	1·04
12 Atmakur tank	432	..	1	..	433	..	0·23
13 Jangamaheswarapuram tank.	218	..	2	..	220	..	0·91
14 Anamasamudram Beeraperu tank.	798	..	..	..	798	..	..
15 Hajipuram tank	215	299	9	..	523	..	1·75
16 Ponnalur tank	666	82	..	..	748	12	..
17 Markapur tank	1,364	..	3	..	1,367	..	0·22
18 Nagavalli river system ..	26,373	551	1,020	340	28,284	26	5·05
19 Venkatapuram tank ..	310	6	..	..	316	..	..
20 Bhavanasi tank	601	3	116	4	724	121	19·87
21 Yellanur tank	521	..	..	..	521	2	..
22 Panjapatti reservoir	..	..	..	..	..	..	..
23 Siddhapur tank	62	..	2	..	64	..	3·23
24 Nagavaram anicut and supply canal.	547	4	410	9	970	73	76·04
25 Mopad reservoir	6,337	5	344	..	6,686	..	5·60
26 Kanniyampalaiyam anicut ..	308	..	134	..	442	..	43·51
27 Toludur reservoir system ..	18,248	480	6,475	266	25,469	644	36·00
28 Thippayapalem project ..	211	..	164	..	375	..	77·73
29 Basavannah channel ..	12,177	35	3,346	5	15,563	..	27·44
30 **Duvvaleru** project	..	..	..	..	..	..	..

E-II.—Statement showing the incidence of Working Expenses and Assessed Water Revenue on Irrigation Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Province during 1945–46.

Name of canal.	Average discharge of the year at canal head in cubic feet per second.	Water assessed, 1945–46. Direct.	Water assessed, 1945–46. Indirect.	Water assessed, 1945–46. Total of direct and indirect.	Gross of assessed revenue from all sources.	Working expenses, direct and indirect.	Area charged as irrigated during the year 1945–46, first and second crops.	Working expenses. Percentage on gross revenue.	Working expenses. Per acre irrigated.	Total water-rate, direct and indirect, per acre irrigated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		RS.	RS.	RS.	RS.	RS.	ACS.			
Productive.										
1 Cauvery delta system	..	52,19,858	1,63,631	53,83,489	54,25,863	14,36,465	1,070,361	26·47	1·34	5·03
2 Srivaikuntam anicut system	..	2,29,222	1,490	2,30,712	2,42,172	1,37,504	38,725	56·77	3·55	5·95
3 Godavari delta system	..	43,44,704	2,30,733	45,75,437	49,31,809	22,72,808	1,229,095	46·09	1·84	3·72
4 Mehamattur anicut system	..	25,641	196	25,837	25,975	10,146	4,900	39·06	2·07	5·27
5 Tadepalli channel	..	1,69,374	2,929	1,72,303	1,75,425	28,427	23,598	16·20	1·20	7·30
6 Kalingaroyan channel	..	1,37,031	483	1,37,514	1,42,032	29,490	22,914	20·75	1·28	5·55
7 Vriddi achalam anicut system	..	46,126	339	46,465	47,431	13,408	9,894	28·05	1·35	4·70
8 Chembrambakkam tank	..	57,333	957	58,290	57,383	18,199	19,600	31·71	0·92	2·97
9 Marudur anicut system	..	2,09,622	279	2,09,901	2,13,417	35,835	27,870	16·78	1·27	7·53
10 Pennar river canals system	..	8,14,470	73,367	8,87,837	8,94,278	2,12,312	177,805	23·74	1·19	5·00
11 Arakenkota channel	..	40,231	428	40,659	42,241	9,650	5,797	22·84	1·66	7·01
12 Tirukkoyilur anicut system	..	1,37,245	3,369	1,40,614	1,42,362	1,08,335	34,766	76·09	3·11	4·04
13 Shatiatope anicut system	..	1,58,139	17,031	1,75,170	1,76,048	49,131	40,019	27·90	1·22	4·37
14 Cheyyar anicut system	..	1,08,782	4,735	1,13,517	1,15,397	87,433	32,753	75·76	2·36	3·46
15 Cumbum tank	..	31,832	472	31,854	31,854	5,499	6,086	17·26	0·90	5·23
16 Poiney anicut system	..	70,219	5,488	75,707	75,962	75,770	25,871	99·74	2·54	2·92
17 Periyar system	..	10,43,131	94,863	11,37,994	11,62,667	3,81,639	201,852	32·82	1·88	5·64
18 Kistna delta system	..	48,35,232	1,92,210	50,27,442	53,55,069	17,27,642	1,002,337	32·26	1·73	5·02
19 Nandiyar channel system	..	33,837	250	34,087	35,088	12,124	9,940	34·55	1·22	3·43
20 Lower Coleroon anicut system	..	5,93,312	51,549	6,44,861	6,58,028	2,09,952	123,161	31·90	1·72	5·32
21 Kistna East Bank canal extension scheme	..	5,28,019	87,205	6,15,224	6,36,348	1,77,191	99,864	27·84	1·79	6·17
22 Polavaram island project	..	1,17,769	..	1,17,769	1,19,017	86,210	23,277	72·43	3·70	5·06
23 Cauvery-Mettur project	..	16,46,952	28,740	16,75,692	17,95,342	5,77,855	231,963	32·18	2·48	7·22
24 Kattalai scheme	..	4,24,035	121	4,24,156	4,33,642	1,06,610	72,265	24·58	1·47	5·87

E-II.—Statement showing the incidence of Working Expenses and Assessed Water Revenue on Irrigation Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Province during 1945–46—*cont.*

Name of canal.	Average discharge of the year at canal head in cubic feet per second.	Water assessed, 1945–46.			Gross of assessed revenue from all sources.	Working expenses, direct and indirect.	Area charged as irrigated during the year 1945–46, first and second crops.	Working expenses.		Total water-rate, direct and indirect per acre irrigated.
		Direct.	Indirect.	Total of direct and indirect.				Percentage on gross revenue.	Per acre irrigated.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Unproductive.		RS.	RS.	RS.	RS.	RS.	ACS.			
1 Kurnool-Cuddapah canal	..	3,92,799	3,277	3,96,076	4,04,799	1,77,062	88,289	43·74	2·00	4·52
2 Barur tank	..	23,946	787	24,733	27,266	8,679	5,385	31·83	1·61	4·60
3 Vallur anicut system	..	8,204	1,074	9,278	9,563	2,883	5,622	30·14	0·51	1·65
4 Madras water-supply and irrigation system	..	24,069	462	24,531	75,404	23,049	10,331	30·56	2·23	2·37
5 Pelandorai anicut system	..	64,138	86	64,224	66,432	25,892	15,420	38·97	1·67	4·16
6 Palar anicut system	..	2,29,188	16,852	2,46,040	2,53,145	3,95,722	93,913	156·32	4·21	2·62
7 Chicacole minor rivers system	..	1,90,204	7,874	1,98,078	1,98,725	91,487	90,871	46·03	1·05	2·18
8 Muniyeru anicut system	..	56,008	62	56,070	59,619	18,246	10,171	30·60	1·78	5·52
9 Dondapad tank	..	1,869	10	1,879	1,879	7,053	438	375·35	13·81	4·19
10 Yerur tank	..	801	86	887	887	640	935	72·15	0·68	0·94
11 Sagileru system	..	13,220	26	13,246	13,392	5,857	3,700	43·73	1·57	3·58
12 Atmakur tank	..	1,771	..	1,771	1,971	1,294	504	65·65	2·56	3·32
13 Jangamaheswarapuram tank	..	1,165	..	1,165	1,165	562	270	48·24	2·82	4·31
14 Anamasamudram-Beeraperu tank	..	872	1	873	873	747	896	85·56	0·83	0·97
15 Hajipuram tank	..	806	70	876	876	783	585	89·38	1·34	1·50
16 Ponnalur tank	..	4,356	..	4,356	4,356	1,239	771	28·44	1·60	5·65
17 Markapur tank	..	7,067	1	7,068	7,112	3,682	1,403	51·77	2·62	5·04
18 Nagavalli river system	..	1,06,225	21,804	1,28,029	1,30,365	49,964	27,115	38·32	1·84	4·72
19 Venkatapuram tank	..	2,943	..	2,943	2,944	1,134	338	38·51	3·35	8·41
20 Bhavanasi tank	..	5,916	..	5,916	5,916	7,361	617	124·42	1·19	9·58
21 Yellanur tank	..	2,017	1,104	3,121	3,121	2,891	551	92·63	5·24	5·66
22 Panjapatti reservoir	..	..	..	..	635	1,518	..	239·05	..	..
23 Siddhapur tank	..	6,946	..	6,946	6,951	2,639	972	37·76	2·71	7·15
24 Nagavaram anicut and supply channel	..	2,681	1,017	3,698	3,698	2,442	999	66·03	2·44	3·70
25 Mopad reservoir	..	54,717	5,170	59,887	60,028	10,939	7,007	18·22	1·56	8·54
26 Kanniyampalaiyam anicut	..	2,698	..	2,698	2,698	815	442	30·20	1·84	6·12
27 Toludur reservoir system	..	1,51,217	448	1,51,665	1,54,723	51,837	25,543	33·50	2·02	5·93
28 Thippapalem project	..	2,672	..	2,672	2,673	1,909	377	71·41	5·06	7·09
29 Basavannah channel	..	1,04,055	..	1,04,055	1,04,169	14,790	15,955	14·19	0·93	6·66
30 [illegible] project	..	..	..	..	94	3,100	..	..	..	..

E.III.—Statement showing the area irrigated by flow and lift under "Productive" and "Unproductive" works and the value of crops raised thereon for fasli 1355 (1945–46).

E-III.—Statement showing the area irrigated by flow and lift unde
for fa

Districts.	Names of systems.	Area actually irrigated.					
		First crop.		Second crop.		Total.	Both seasons
		Flow.	Lift.	Flow.	Lift.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
	1. *Productive Works.*						
East Godavari.	Polavaram island system ..	14,322	86	7,549	5	21,962	[illegible]
	Godavari delta system ..	389,992	9,041	127,102	9,192	535,327	[illegible]
West Godavari.	Do. ..	454,695	14,070	191,876	7,016	667,657	[illegible]
Kistna	Do. ..	1,066	..	43	7	1,116	..
	(Godavari delta) Total ..	845,753	23,111	319,021	16,215	1,204,100	[illegible]
West Godavari.	Kistna delta system ..	36,851	127	123	60	37,161	..
Kistna	Do. ..	505,827	17,664	5,468	393	529,352	[illegible]
Guntur	Do. ..	386,'96	13,865	7,816	1,344	409,321	[illegible]
	(Kistna delta) Total ..	928,974	31,656	13,407	1,797	975,834	[illegible]
Kistna	Divi *cum* Kistna East Bank canal.	94,352	752	70	3	95,177	[illegible]
Nellore	Pennar river canals	160,?38	4,396	3,964	226	168,924	[illegible]
Coimbatore ..	Arakenkota channel.. ..	4,637	159	948	36	5,780	[illegible]
	Tadepalli channel	16,3'6	575	4,587	449	21,927	[illegible]
	Kalingarayan channel ..	9,995	2,501	7,845	2,467	22,808	[illegible]
Chingleput ..	Chembrambakkam tank ..	13,018	653	4,638	38	18,347	[illegible]
North Arcot ..	Poiney anicut system ..	16,091	758	3,872	111	20,832	[illegible]
Chittoor ..	Do. ..	1,447	16	689	6	2,158	[illegible]
	(Poiney anicut) Total ..	17,538	774	4.561	117	22,990	[illegible]
South Arcot ..	Tirukkoyilur anicut system	28,188	1,300	5,288	279	35,055	[illegible]
	Shatiatope anicut system ..	32,249	471	5,092	192	38,0'4	[illegible]
	Mehamattur anicut system.	4,609	71	153	..	4,833	[illegible]
	Vriddhachalam anicut system.	9,780	330	409	5	10,524	[illegible]
	Lower Coleroon anicut system.	82,932	3,436	5,815	328	92,511	[illegible]
Tanjore ..	Do.	23,494	?07	2,709	179	26,989	[illegible]
	(Lower Coleroon) Total ..	1' 6,426	4,043	8,524	507	119,500	[illegible]
Tanjore ..	Cauvery delta system ..	801,124	24,981	131,314	3,510	960,929	[illegible]
Trichinopoly ..	Do. ..	46, 56	?,208	26,716	1,588	77,368	[illegible]
	(Cauvery delta) Total ..	847,980	27.189	158,?30	5,098	1,038,297	[illegible]
Tanjore ..	Cauvery-Mettur Project ..	129,088	8,917	45,042	4,?94	187,641	[illegible]
Trichinopoly ..	Nandiyar channel system ..	6,443	939	2,096	292	9,770	[illegible]
	Kattalai scheme ..	50,335	2,7?1	16,381	1,530	71,007	[illegible]
Madura ..	Periyar system	129,527	3,735	54,084	2,269	189,615	[illegible]
Ramnad ..	Do.	..	831	..	..	831	..
	(Periyar system) Total ..	129.527	4,566	54,084	2,269	190,446	[illegible]
Tinnevelly ..	Srivaikuntam anicut system.	24,018	1,070	10,789	1,476	37,3?3	[illegible]
	Marudur anicut system ..	16,988	288	9,793	?34	27,403	[illegible]
Kurnool ..	Cumbum tank	5.422	114	3°6	52	5,974	[illegible]
North Arcot ..	Cheyyar anicut system ..	19,029	621	10,595	369	30,614	[illegible]
Chingleput ..	Do. ..	399	..	46	..	445	..
	(Cheyyar Anicut) Total ..	19.428	621	10,641	369	31,059	[illegible]
	Total, of Productive works ..	3,515,724	117,343	693,298	38,350	4,364,715	[illegible]

"Productive" and "Unproductive" works and the value of crops raised thereon 1355 (1945–46).

Value of crops.							
Paddy.		Ragi.		Other crops.		Total.	
Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
21,514	19,73,905	4	318	444	7,200	21,962	19,81,423
498,373	5,89,23,765	58	5,797	36,896	25,89,984	535,327	6,15,19,546
593,431	5,32,19,627	1,534	38,036	70,044	28,08,320	665,009	5,60,65,983
1,116	73,772	..	..	..	..	1,1 6	73,772
1,092,926	11,22,17,164	1,592	43,833	1,06,940	53,98,304	1,201,452	11,76,59,301
36,950	36,25,352	..	..	211	1,140	37,161	36,26,492
523,034	5,68,59,011	33	2,497	6,285	1,64,200	529,352	5,70,25,708
402,950	3,87,41,796	141	8,081	6,230	9,41,800	409,321	3,96,91,677
962,934	10,92,26,159	174	10,578	12,726	11,07,140	975,834	10,03,43,877
77,773	99,38,287	251	16,347	17,193	3,43,860	95,177	1,02,98,494
151,995	1,79,66,226	1,786	1,43,338	15,143	65,820	168,924	1,81,75,384
5,682	10,9?,788	14	2,442	84	33,492	5,78?	11,29,722
2?,559	39,21,932	104	20,470	1,264	5,05,600	21,927	44,48,002
18,850	32,04,718	1,482	2,20,876	2,476	31,600	22,808	34,57,194
17,332	13,21,154	446	28,792	569	71,936	18,347	14,21,882
15,128	10,94,508	3,633	4,91,951	2,071	10,355	20,832	15,96,814
1,594	1,93,768	227	34,5 5	337	4,330	2,158	2,32,693
16,722	12.88,276	3,860	5,26,546	2,408	14,685	22,990	18,29,507
25,049	25,82,536	5,625	5,56,675	4,381	1,84,002	35,055	33,23,213
36,040	37,61,280	787	75,467	1,177	1,01,635	38,004	39,38,382
4,162	4,90,177	52	4,098	619	18,570	4,833	4,22,845
10,132	12,16,153	32	2,770	360	12,020	10,524	12,30,943
89,311	81,60,309	1,100	51,768	2,100	21,000	92,511	85,83,077
24,429	25,70,459	245	29,890	2,315	2,45,150	26,989	28,45,499
113,740	?,10,30,768	1,345	81,658	4,415	2,66,150	119,500	1,13,78,576
917,770	8,60,86,761	4,152	3,85,559	38,953	3,09,060	960,875	8,67,81,380
72,353	1,08,48,085	406	58,223	4,578	5,37,894	77,337	1,14,44,202
990,123	9,69,34,846	4,558	4,43,78?	43,531	8,46,954	1,038,212	9,82,25,582
178,641	1,65,78,055	1,500	92,572	7,400	4,16,400	187,541	1,70,87,027
8,254	10,29,791	242	2,77,819	1,265	3,94,625	9,761	17,02,235
57,273	67,24,138	345	19,038	13,389	13,30,735	71,007	80,73,911
156,079	2,32,06,227	8,048	7,31,986	25,488	26,39,336	189,615	2,65,7 ,549
789	1,79,098	20	3,468	22	300	831	1,82,866
156,868	2,33,85,325	8,068	7,35,454	25,510	26,39,636	190,446	2,67,60 415
34,128	40,86,286	190	19,487	3,035	2,06,100	37,353	43,11,873
26,270	4,18,900	209	18,?90	924	1,12,266	27,403	5,49,356
4,022	4,56,591	852	81,107	1,100	21,165	5,974	5,53,863
28,272	30,77,305	1,790	2,21,366	552	12,656	30,614	33,11,327
423	30,152	20	1,439	2	430	445	32,021
28,695	31,07,457	1,?10	2,22,805	554	13,086	31,059	33 43,348
4,059,638	42,38,63,912	35,328	36,44,462	266,907	1,41,42,981	4,361,873	44,16,51,355

E-III.—Statement showing the area irrigated by flow and lift under [illegible] for fasli 135[illegible]

Districts.	Names of systems.	Area actually irrigated. First crop. Flow.	First crop. Lift.	Second crop. Flow.	Second crop. Lift.	Total.	Both seasons.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
	Unproductive Works.						
Vizagapatam ..	Chicacole minor river system.	77,007	2,805	5,372	1,452	86,636	9[illegible]
	Nagavalli river project ..	26,373	551	1,020	340	28,284	2[illegible]
Kistna	Muniyeru anicut system ..	9,609	258	83	7	9,957	1[illegible]
Guntur	Jangamaheswarapuram tank.	218	..	2	..	220	..
	Atmakur tank	432	..	1	..	433	..
	Dondapad tank	428	..	4	..	432	..
	Bhavanasi tank	601	3	116	4	724	12[illegible]
Nellore	Mopad reservoir	6,337	5	344	..	6,686	..
	Hajeepuram tank	215	299	9	..	523	..
	Ponnalur tank	666	82	..	..	748	2[illegible]
	Annamasamudram-Biraperu tank.	798	..	..	..	798	..
	Yerur tank	317	4	109	..	430	..
Cuddapah ..	Sagileru system	3,484	16	48	1	3,549	1[illegible]
	Chepad channel	9,907	66	394	..	10,367	9[illegible]
	Nagavaram anicut and supply channel.	547	4	410	9	970	7[illegible]
Kurnool ..	Markapur tank	1,364	..	3	..	1,367	..
	Siddapur tank	62	..	2	..	64	..
	Venkatapuram tank ..	310	6	..	..	316	..
	Tippayapalem project ..	211	..	164	..	375	..
	Kurnool-Cuddapah canal ..	35,285	188	4,348	174	40,495	2[illegible]
Cuddapah ..	Do. ..	3',232	1,056	2,973	234	35,495	1,5[illegible]
	(Kurnool-Cuddapah canal) Total ..	66,517	1,244	7,821	408	75,990	1,7[illegible]
Bellary ..	Basavanna and Raya channel.	12,177	35	3,346	5	15,563	
Anantapur ..	Yellanur tank	521	..	..	..	521	2[illegible]
Salem	Barur tank	3,893	175	794	60	4,922	5[illegible]
Coimbatore ..	Kanniyampalaiyam anicut ..	308	..	134	..	442	..
Chingleput ..	Madras water-supply and irrigation system.	6,463	291	2,080	206	9,040	1[illegible]
	Vallur anicut system ..	3,201	1,029	403	46	4,679	7[illegible]
	Palar anicut system	17,145	337	2,266	349	20,097	3[illegible]
North Arcot ..	Do.	45,137	2,611	15,899	674	64,321	6[illegible]
	(Palar anicut system) Total ..	62,282	2,948	18,165	1,023	84,418	69[illegible]
South Arcot ..	Pelandorai anicut system ..	10,595	3,029	817	46	14,48[illegible]	11[illegible]
	Willingdon reservoir ..	18,248	480	6,475	266	25,46[illegible]	64[illegible]
	Total, of Unproductive works.	323,091	13,330	48,116	3,873	388,410	4,4[illegible]
	Total, of Productive works.	3,515,724	117,343	693,298	38,350	4,364,715	76,6[illegible]
	Grand total ..	3,838,815	130,673	7,41,414	42,223	4,753,125	81,0[illegible]

NOTE.—(1) The area " under both season[illegible]
(2) The arean columns (3) to (6) [illegible]
(3) The area of " withered crops [illegible]

"Productive" and "Unproductive" works and the value of crops raised thereon (1945-46)—*cont.*

Value of crops.							
Paddy.		Ragi.		Other crops.		Total.	
Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
76,689	75,03,488	9,160	4,95,797	479	5,248	86,328	80,04,533
25,781	26,61,393	1,344	76,758	1,153	25,03,440	28,278	52,41,591
9,466	12,51,933	1	..	109	7,327	9,576	12,59,260
203	23,856	1	..	16	1,250	220	25,106
392	28,978	..	..	41	3,300	433	32,274
372	57,083	52	14,021	8	800	432	71,908
724	1,14,166	..	..	..	..	724	1,14,166
6,116	6,88,961	210	22,414	360	16,970	6,686	7,28,345
10	133	467	18,599	46	320	523	19,052
535	19,999	60	5,001	153	32,000	748	87,000
..	..	386	30,495	409	21,000	795	51,495
428	15,410	1	..	1	..	430	15,410
2,553	2,24,177	424	37,276	557	8,760	3,534	2,70,213
8,117	9,14,136	690	58,817	1,503	1,18,893	10,310	10,91,846
731	38,532	56	5,265	183	2,400	970	46,197
1,020	1,39,516	218	18,888	129	4,238	1,367	1,62,642
972	1,11,868	..	..	..	..	972	1,11,868
316	53,057	..	..	..	..	316	53,057
193	14,494	..	..	182	4,000	375	18,494
25,322	36,96,075	84	7,374	15,089	1,60,027	40,495	38,63,476
21,328	24,15,033	2,429	1,79,540	11,723	6,02,242	35,480	31,96,815
46,650	61,11,108	2,513	1,86,914	26,812	7,62,269	75,975	70,60,291
4,795	7,09,918	97	8,808	10,671	1,25,087	15,563	8,43,813
505	74,330	7	489	9	5,625	521	80,444
3,813	6,59,724	327	67,018	782	1,67,621	4,922	8,94,363
321	61,813	2	448	119	51,010	442	1,13,271
8,657	9,78,632	313	22,121	70	3,500	9,040	10,04,253
3,685	2,96,716	922	71,771	..	..	4,607	3,68,487
17,636	18,73,327	1,268	88,145	1,193	50,482	20,097	20,11,954
54,188	48,76,407	8,083	8,94,519	2,050	30,750	64,321	58,01,676
71,824	67,49,734	9,351	9,82,664	3,243	81,232	84,418	78,13,630
14,013	19,27,536	105	7,853	369	11,010	14,487	19,46,399
21,713	27,42,029	191	1,493	3,564	1,54,430	25,468	28,97,952
310,594	3,42,02,715	26,898	21,32,910	50,968	40,91,730	388,460	4,04,27,355
4,059,638	42,38,63,912	35,328	36,44,462	266,907	1,41,42,981	4,361,873	44,16,51,355
4,370,232	45,80,66,627	62,226	57,77,372	317,875	1,82,34,711	4,750,333	48,20,78,710

ls included under the first and second crops.
xtent under 'withered crops" but exclude "waste charged."
42,792 acres.

E-IV.—Comparative statement of irrigation and rainfall in th

Civil districts.	Of the civil districts. Total area in acres.	Cultivable area in acres.	Cultivated area in acres.	Works supplying irrigation—Number and name.	Cultivable area commanded by the irrigation works in column (5)
(1)	(2)	(3)	(4)	(5)	(6)
					ACS.
Vizagapatam ..	..	..	..	1 Chicacole minor river system	70,00
				2 Nagavalli river system	31,20
				3 Minor works	121,78
				Total ..	222,9
East Godavari ..	..	..	..	1 Godavari delta system	396,2
				2 Polavaram island system	18,6
				3 Minor works	94,8
				Total ..	509,73
West Godavari ..	..	..	..	1 Godavari delta system .. .	565,
				2 Kistna delta system	
				3 Minor works	43,1
				Total ..	608,1
Kistna	..	..	..	1 Kistna delta system	548,0
				2 Godavari delta system	50,0
				3 Divi system	18,0
				4 Muniveru anicut system	20,9
				5 Minor works	
				Total ..	656,0
Guntur	..	..	..	1 Kistna delta system	337,0
				2 Bhavanasi tank	2,4
				3 Dondapad tank	2,8
				4 Atmakur tank	1,1
				5 Jangamaheswarapuram tank	9
				6 Minor works	26,5
				Total ..	380,9
Kurnool	..	..	..	1 Kurnool-Cuddapah canal	310,8
				2 Venkatapuram tank	1,7
				3 Cumbum tank	6,0
				4 Markapur tank	1,7
				5 Siddhapur tank	4,2
				6 Thippayapalem project	
				7 Minor works	47,3
				Total ..	380,
Bellary	..	..	..	1 Basavanna and Raya channel ..	55,4
				2 Minor works	
				Total ..	55,4
Anantapur ..	..	..	.	1 Yellanur tank	1,8
				2 Minor works	153,2
				Total ..	154,6
Cuddapah ..	..	..	..	1 Kurnool-Cuddapah canal including Chepad channel.	37,7
				2 Sagileru system	26,1
				3 Nagavaram anicut and supply channel.	8
				4 Minor works	102,2
				Total ..	167,7
Nellore	..	..	..	1 Pennar river canal system	190,0
				2 Mopad reservoir	11,8
				3 Ponnalur tank	1,3
				4 Anamasamudram-Biraperu tank ..	1,0
				5 Yerur tank	2,1
				6 Hajipuram tank	4,9
				7 Minor works	136,3
				Total ..	349,5
Chingleput ..	..	..	..	1 Palar anicut system	34,1
				2 Chembarambakkam tank	34,4
				3 Vallur anicut system	6,7
				4 Cheyyar anicut system	5
				5 Madras water-supply and irrigation system.	10,1
				6 Minor works	358,1
				Total ..	424,

Madras Presidency for the revenue year ending with 30th June 1946.

Area at present estimated as annually irrigable by the works specified in column (5).	Area irrigated in acres.						Rainfall.	
	Revenue year ending with June 1945.			Revenue year ending with June 1946.			1944–45.	1945–46.
	Kharif I crop.	Rabi II crop.	Total.	Kharif I crop.	Rabi II crop.	Total.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	INCHES.	INCHES
66,800	77,459	8,969	86,428	79,812	6,824	86,636		
27,500	26,302	1,008	27,310	26,924	1,360	28,284		
121,767	121,674	16,113	137,787	126,199	14,586	140,785		
216,067	225.435	26,090	251,525	232,935	22.770	255,705	34·8	39·7
377,000	386,090	122,008	508,098	399,[illegible]34	1[illegible]6,293	535,327		
17,500	15,201	6,467	21,668	14,408	7,554	21,962		
94,862	80,[illegible]66	17,225	97,991	118,296	19,072	137,368		
489,362	482,057	145,700	627,757	531,738	162,919	694,657	49·5	46·1
414,500	435,692	172,250	607,942	468,765	198,892	667,657		
..	41,064	398	41,462	36,979	182	37,161		
43,129	43,783	1.377	45,160	44,423	1,123	45,546		
457,629	520,539	174,025	694,564	550,167	200,197	750,364	44·6	37·4
445,300	492,194	4,169	496,363	52[illegible],490	5,862	529,352		
..	1,116	173	1,289	1,066	50	1,116		
42,000	88,939	8	88,947	95,104	73	95,177		
10,000	7.391	84	7,475	9,867	90	9,957		
20,963	20,799	38	20,837	22,682	211	22,[illegible]93		
518,203	610,439	4,472	614,911	652,209	6,286	658,495	38·8	32·6
330,000	408,381	5,046	413,427	400,161	9,160	409,321		
841	601	1	602	604	120	724		
250	313	199	712	428	4	432		
460	369	8	372	432	1	433		
290	220	48	268	218	2	220		
26,534	26,2[illegible]3	2,740	28,973	26,779	1,183	27,962		
358,375	436,317	8,037	444,354	428,622	10,470	439,092	36·0	32·2
103,743	35,852	7,908	43,760	35,473	5,022	40,495		
340	303	194	497	316	..	316		
5,980	5,579	4.548	10,127	5,536	438	5,974		
1,583	1,422	1,129	2,551	1,364	3	1,367		
3.730	1.007	8	1,015	62	2	64		
..	802	284	1.086	211	164	375		
47,146	44,907	9,087	53,994	45,973	2,808	48,781		
162,522	89,872	23,158	113,030	88,935	8,437	97,372	25·7	25·5
..	..	..	..	12,212	3,351	15,563		
55,406	47,813	12,040	59,853	47,616	7,798	55,414		
55,406	47,813	12,040	59,853	59,828	11,149	70,977	27·5	17·5
925	494	3	497	521	..	521		
153,233	121,962	44,116	166,078	113,148	28,530	141,678		
154,158	122,456	44,119	166,575	113,669	28,530	142,199	22·0	14·7
19,676	31,874	4,339	36,213	32,288	3,207	35,495		
..	9,870	1,118	10,988	9,973	394	10,367		
4,500	2,602	10	3,612	3,500	49	3,549		
894	595	504	1.099	551	419	970		
102,629	102,017	35,293	137,310	90,[illegible]40	18,180	108,920		
127,699	147,958	41,264	189,222	137,052	22,249	159,[illegible]01	31·6	21·3
162,500	162,167	33,666	195.533	164,734	4,190	168,924		
12,500	4,277	493	4,770	6,342	344	6,686		
1,000	754	612	1,366	748	..	748		
1,000	938	8	946	798	..	798		
1,470	927	..	927	321	109	430		
700	860	849	1,709	514	9	523		
136,956	130,754	27,025	157,779	124,862	9,650	134,512		
316,126	300,677	62,653	363,030	298,319	14,302	312,621	44·7	24·8
24,102	19,824	11,214	31,038	17,482	2,615	20,097		
18,000	13,356	6.899	20,255	13,671	4,676	18,347		
5,216	4,330	284	4,614	4,230	449	4,679		
494	403	79	482	399	46	445		
9,852	6,365	2,655	9,020	6,754	2,286	9,040		
358,578	329,753	136,044	465,797	328,618	81,193	409,811		
416,242	374,031	157,175	531,206	371,154	91,265	462,419	56·9	41·5

E-IV.—Comparative statement of irrigation and rainfall in the [illegible]

Civil districts.	Of the civil districts. Total area in acres.	Cultivable area. in acres.	Cultivated area. in acres	Works supplying irrigation—Number and name.	Cultivable area commanded by the irrigation works in column 5
(1)	(2)	(3)	(4)	(5)	(6)
					ACS.
South Arcot ..	..	..	..	1 Lower Coleroon anicut system ..	86,0[illegible]
				2 Shatiatope anicut system	43,9[illegible]
				3 Vriddhachalam anicut system ..	16,3[illegible]
				4 Mehamattur anicut system	10,6[illegible]
				5 Tirukkoyilur anicut system	45,5[illegible]
				6 Pelandurai anicut system	16,6[illegible]
				7 Willingdon reservoir	29,9[illegible]
				8 Minor works	300,1[illegible]
				Total ..	548,0[illegible]
North Arcot ..	..	..	..	1 Palar anicut system	80,0[illegible]
				2 Cheyyar anicut system	26,9[illegible]
				3 Poiney anicut system	22,9[illegible]
				4 Minor works	231,4[illegible]
				Total ..	365,2[illegible]
Chittoor	..	..	..	1 Poiney anicut system	..
				2 Minor works	113,0[illegible]
				Total ..	113,0[illegible]
Salem	..	..	..	1 Barur tank	6,4[illegible]
				2 Minor works	106,0[illegible]
				Total ..	112,8[illegible]
Coimbatore ..	..	..	..	1 Tadepalli channel	14,0[illegible]
				2 Arakkankottai channel	6,3[illegible]
				3 Kalingarayan channel	15,0[illegible]
				4 Kanniyampalaiyam anicut	1,9[illegible]
				5 Minor works	72,8[illegible]
				Total ..	111,4[illegible]
Trichinopoly ..	..	..	..	1 Cauvery delta system	44,0[illegible]
				2 Nandiyar channel system	9,0[illegible]
				3 Kattalai scheme	41,0[illegible]
				4 Minor works	120,0[illegible]
				Total ..	214,4[illegible]
Tanjore	..	..	..	1 Cauvery delta system	864,1[illegible]
				2 Lower Coleroon anicut system ..	31,2[illegible]
				3 Cauvery-Mettur project	528,6[illegible]
				4 Minor works	65,0[illegible]
				Total ..	1,490,0[illegible]
Madura	..	..	..	1 Periyar system	131,0[illegible]
				2 Minor works	..
				Total ..	131,0[illegible]
Ramnad	..	..	..	1 Periyar system	38,0[illegible]
				2 Minor works	..
				Total ..	38,0[illegible]
Tinnevelly ..	..	..	..	1 Srivaikuntam anicut system	33,5[illegible]
				2 Marudur anicut system	17,9[illegible]
				3 Minor works	187,1[illegible]
				Total ..	238,5[illegible]
				Total of productive and unproductive works.	4,758,1[illegible]
				Total of minor works ..	2,528,3[illegible]
				Grand total ..	7,286,7[illegible]

Madras Presidency for the revenue year ending with 30th June 1946—*cont.*

Area at present estimated as annually irrigable by the works specified in column (5).	Area irrigated in acres. Revenue year ending with June 1945. Kharif I crop.	Rabi II crop.	Total.	Revenue year ending with June 1946. Kharif I crop.	Rabi II crop.	Total.	Rainfall. 1944-45.	1945-46.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	INCHES.	INCHES.
84,244	84,913	9,951	94,864	86,368	6 143	92,511		
32,000	32,811	10,628	43,439	32,720	5,284	38,004		
8,829	9,743	527	10,270	10,111	413	10,524		
5,000	4,994	624	5,618	4,680	153	4,833		
28,000	28,563	5,994	34,557	29,488	5,567	35,055		
12,837	13,336	1,452	14,788	13,624	863	14,487		
25,000	20,852	5,407	26,259	18,728	6,741	25,469		
300,198	291,384	89,394	380,778	304,259	74,802	379,061		
496,108	486,596	123,977	610,572	499,978	99,966	599,944	48·0	37·1
54,566	53,402	30,176	83,578	47,748	16,573	64,321		
22,193	19,723	14,169	33,892	19,650	10,964	30,614		
22,462	20,098	9,415	29,513	16,849	3,983	20,832		
231,647	204,220	93,571	297,791	187,759	62,377	250,1[illegible]6		
330,868	297,443	147,331	444,774	272,006	93,897	365,903	40·6	31·6
..	1,463	695	2,158	1,463	695	2,158		
113,903	101,579	50,320	151,899	86,7[illegible]7	30,409	117,146		
113,903	103,042	51,015	154,057	88,200	31,104	119,304	43·0	26·4
3,750	4,077	1,395	5,472	4,068	854	4,922		
105,998	102,285	41,200	143,485	98,830	35,365	134,195		
109,748	106,362	42,595	148,957	102,898	36,219	139,117	37·9	26·5
15,400	14,260	4,520	18,780	16,891	5,036	21,927		
4,845	4,773	537	5,310	4,796	984	5,[illegible]80		
12,239	12,439	13,303	25,742	12,496	10,312	22,808		
213	308	134	442	308	13	442		
72,862	72,467	28,091	100,558	69,313	27,469	96,782		
105,559	104,247	46,585	150,832	103,804	43,935	147,739	38·2	29·6
44,008	48,395	27,111	75,506	49,064	28,304	77,368		
7,084	7,280	2,873	10,153	7,382	2,388	9,770		
36,623	50,140	18,348	68,488	53,097	17,910	71,007		
120,308	124,799	61,770	186,569	117,316	52,257	169,573		
208,023	230,614	110,102	340,716	226,859	100,859	327,7[illegible]8	40·1	25·1
856,918	822,785*	127,305	950,090	826,105	134,824	960,929		
23,685	23,404	3,799	27,203	24,101	2,[illegible]88	26,989		
177,000	192,903	56,743	249,646	138,005	49,636	187,641		
65,961	43,533	3,513	47,046	43,[illegible]02	1,668	45,470		
1,123,564	1,082,625	191,360	1,273,985	1,032,013	189,016	1,221,029	55·3	35·6
143,000	133,432	57,189	190,621	134,093	55,522	189,6[illegible]5		
131,046	127,149	48,298	175,447	121,729	43,310	165,039		
274,046	260,581	105,487	366,068	255,822	98,832	354,654	43·7	30·0
..	..	..	..	831	..	831		
38,362	34,921	19,075	53,996	35,572	11,194	46,766		
38,362	34,921	19,075	53,996	36,403	11,194	47,597	36·7	[illegible]
25,685	25,029	14,206	39,235	25,088	12,265	37,353		
17,920	16,983	10,192	27,175	17,276	10,127	27,403		
187,167	187,990	92,269	280,259	193,441	91,107	284,548		
230,772	230,002	116,667	346,669	235,805	113,499	349,304	33·2	33·4
3,774,147	3,933,239	824,328	4,757,567	3,970,322	782,803	4,753,125		
2,528,595	2,360,788	828,599	3,189,387	2,348,094	614,292	2,962,386		
6,302,742	6,294,027	1,652,927	7,946,954	6,318,416	1,397,095	7,715,511	39·4	30·6

F-I.—Statement showing the water-rates per acre which were in force under certain "Productive" and "Unproductive" Works in the Madras Presidency during the year ending 30th June 1946.

Description of crop.	Godavari and Kistna anicuts.	Muniyeru project.	Periyar system.*	Bhavanasi tank.	Venkata-puram tank.	Mopad reservoir.	Willing-don reservoir.	Panja-patti reservoir.†	Siddapur tank.	Other systems (in tracts where the differential water-rate system does not prevail). ‡
	RS. A.	RS. A.	RS. A.	RS. A.	RS. A.	RS. A.	RS. A.	RS. A.	RS. A.	
1 Single wet crop	6 4	6 4	5 0	9 6	4 3	7 13	6 4	6 4	6 0	..
2 Second wet crop	3 2	3 2	3 0	4 11	2 1	3 15	3 2	3 2	3 0	..
3 Second wet crop (if compounded for two crops for a term of not less than five years).	10 3	..	..	..	..	..	..	..	..	..
4 Second dry crop on irrigated land except where the landholder has compounded under clause 3.	3 2	3 2	..	..	..	..	..	..	..	..
5 For sugarcane, betel and other garden produce remaining on the ground for the time of two crops.	9 6	9 6	8 0	14 1	6 4	11 12	9 6	.	9 0	..
6 For sugarcane, betel and other garden produce remaining on the ground for the time of two crops, if compounded for a term of not less than five years.	10 3	..	..	..	..	..	..	..	..	..
7 For a dry crop, whether first or second, grown on land for which irrigation has never been supplied or having been once supplied has been since discontinued.	3 2	..	..	4 11	2 1	3 15	..	..	..	..
8 For a third irrigated crop (wet)	2 8	3 2	2 0	..	..	..	..	..	..	..
9 Do. (dry)	1 4	3 2	1 0	..	..	..	..	..	..	..
10 Dry crop systematically irrigated	6 4	4 11	..	..	..	..	..	..	..	..
11 Second wet crop in the case of zamindari and inam lands ..	6 4	3 2	..	..	..	..	..	..	..	..
12 Second wet crop in the case of zamindari and inam lands where the cultivator has compounded for two crops for a term of not less than five years.	10 3	..	..	..	..	..	..	..	..	..
13 For sugarcane, betel and other garden produce in zamindari and inam lands remaining on the ground for the time of two crops.	12 8	9 6	..	..	..	..	..	..	..	..
14 For sugarcane, betel and other garden produce in zamindari and inam lands remaining on the ground for the time of two crops, if the cultivator has compounded for a term of not less than five years.	10 3	..	..	..	..	..	..	..	..	..
15 For a first dry crop systematically irrigated	..	..	5 0	..	..	..	..	..	..	..
16 For a second dry crop systematically irrigated	..	..	3 0	..	..	..	..	..	..	..
17 For a first or second dry crop occasionally irrigated	..	..	2 8	..	..	..	..	..	..	..

18 Special crops like onions, sweet potatoes, chillies, tobacco (the same as for a dry crop systematically irrigated).	..	..	[illegible] 0	..	..	..	..	..	..	..
19 Mango topes, coconut topes and other tope plantations—										
(a) If they take water for term of two wet crops	..	..	8 0	..	..	..	..	..	..	..
(b) In other cases	..	..	5 0	..	..	..	..	..	..	..

NOTE.—When the water used for irrigation cannot be obtained without raising it by baling or by some mechanical contrivance a deduction of one-fourth of the water-rate will be made.

* Double the rates are levied when Periyar water is supplied to Government and minor inam dry lands to the Cumbum Valley, Periyakulam taluk, to which extension of irrigation has been sanctioned.

† Standard scale of water-cess has been ordered to be adopted until further orders—*Vide* G.O. Ms. No. 1277, Revenue, dated 29th June 1934.

‡ First crop on dry land.	Second crop on dry land.	Charge for First crop.	Charge for Second crop.		Total charge.	
		RS.	RS.	A.	RS.	A.
1 Wet	Wet	4	2	0	6	0
2 Do.	Dry, systematically irrigated	4	1	8	5	8
3 Do.	Dry, occasionally irrigated	4	1	0	5	0
4 Dry, systematically irrigated	Wet	3	2	8	5	8
5 Do.	Dry, systematically irrigated	3	2	0	5	0
6 Do.	Dry, occasionally irrigated	3	1	8	4	8
7 Dry, occasionally irrigated	Wet	2	3	0	5	0
8 Do.	Dry, systematically irrigated	2	2	8	4	8
9 Do.	Dry, occasionally irrigated	2	2	0	4	0

N.B.—The rates fixed in the Tanjore District Cauvery Water-cess Rules are not incorporated in this statement.

APPENDIX II.

I

Statement showing the financial results of irrigation under Productive and Unproductive Systems for fasli 1355 (1945–46).

Systems.	Area charged as irrigated and area irrigated free of charge. — First crop.			Area charged as irrigated and area irrigated free of charge. — Second crop.			Direct receipts.	
	Old irrigation.	New irrigation.	Total.	Old irrigation.	New irrigation.	Total.	Total land and irrigation revenue.	Share due to irrigation.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. Productive Works.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.
1 Godavari Delta system	156,150	746,055	902,205	..	326,890	326,890	75,54,462	60,83,656
2 Kistna Delta system	70,710	910,378	981,088	..	21,249	21,249	63,97,185	58,41,055
3 Divi *cum* Kistna East Bank canal	9,900	86,928	99,828	..	36	36	6,24,041	6,21,027
4 Pennar river canals system	99,080	74,184	173,264	1,050	3,491	4,541	9,82,155	8,29,944
5 Arakkankottai channel	2,730	2,083	4,813	10	974	984	46,614	40,231
6 Tadepalle channel	9,990	8,572	18,562	170	4,866	5,036	1,94,231	1,69,386
7 Kalingarayan channel	8,300	4,303	12,603	8,350	1,961	10,311	1,55,554	1,37,243
8 Chembrambakkam tank	11,370	3,704	15,074	1,160	3,366	4,526	86,193	62,774
9 Poiney anicut system	15,550	5,643	21,193	2,500	2,178	4,678	1,47,579	1,11,614
10 Cheyyar anicut system	14,960	6,783	21,743	1,630	9,380	11,010	1,56,517	1,11,833
11 Tirukkoyilur anicut system	16,080	13,383	29,463	30	5,273	5,303	1,84,588	1,37,811
12 Shatiyatope anicut system	7,160	27,575	34,735	..	5,284	5,284	2,15,615	1,59,247
13 Mehamathur anicut system	990	3,757	4,747	..	153	153	36,361	26,268
14 Vriddhachalam anicut system	2,430	7,051	9,481	..	413	413	67,554	47,569
15 Lower Coleroon anicut system	44,760	62,234	113,994	170	8,997	9,167	8,73,924	5,95,901
16 Cauvery Delta system	743,647	163,947	907,594	33,919	128,848	162,767	67,14,103	53,10,492
17 Nandiyar channel system	4,680	2,872	7,552	1,570	818	2,388	44,969	34,294
18 Periyar system	65,600	79,056	144,656	16,100	41,096	57,196	11,56,848	10,49,372
19 Srivaikuntam anicut system	14,580	11,622	26,202	5,850	6,673	12,523	2,72,488	2,30,947
20 Marudur anicut system	17,020	571	17,591	590	9,689	10,279	2,43,369	2,10,084
21 Cumbum tank	4,850	797	5,647	2,670	— 2,231	439	39,583	35,595
22 Kattalai scheme	27,860	26,829	54,689	8,250	9,326	17,576	5,09,240	4,26,735
23 Polavaram Island system	..	15,368	15,368	..	7,909	7,909	1,21,514	1,21,514
24 Cauvery-Mettur Project	69,257	116,842	186,099	1,730	44,134	45,864	17,54,959	17,11,065
Total, Productive Works	1,417,654	2,390,537	3,808,191	85,749	640,773	726,522	2,85,70,646	2,41,05,297

25 Chicacole minor rivers system	51,260	32,730	83,990	..	6,875	6,875	2,55,400	1,93,178
26 Willingdon reservoir	2,500	16,302	18,802	260	6,481	6,741	1,59,998	1,56,128
27 Nagavalli river system	10,600	15,712	26,312	5,200	−4,297	903	1,34,724	1,07,821
28 Muniyeru anicut system	600	9,481	10,081	..	90	90	68,897	58,692
29 Jangamaheswarapuram tank	150	118	268	7	−5	2	1,685	1,165
30 Atmakur tank	..	503	503	..	1	1	2,495	2,046
31 Dondapad tank	..	434	434	..	4	4	2,094	1,869
32 Bhavanasi tank	..	615	615	..	2	2	5,916	5,916
33 Mopad reservoir	..	6,593	6,593	..	414	414	54,894	54,717
34 Hajipuram tank	..	576	576	..	9	9	3,175	2,573
35 Ponnalur tank	..	771	771	..	..	..	5,547	4,356
36 Anamasamudram-Biraperu tank	900	−4	896	80	−80	..	4,389	3,879
37 Yerur tank	80	746	826	..	109	109	4,711	3,567
38 Sagileru system	3,600	51	3,651	700	−651	49	19,269	16,859
39 Markapur tank	450	950	1,400	50	−47	3	7,737	7,090
40 Yellanur tank	..	551	551	..	..	..	2,913	2,491
41 Siddhapur tank	..	970	970	..	2	2	6,946	6,946
42 Nagavaram anicut and supply channel	452	128	580	235	184	419	4,791	4,074
43 Venkatapuram tank	..	333	338	..	..	..	2,990	2,943
44 Kurnool-Cuddapah canal	6,643	62,585	69,228	..	8,284	8,284	3,77,062	3,40,997
45 Chepad channel	1,406	8,965	10,371	56	350	406	59,275	52,474
46 Barur tank	1,760	2,771	4,531	540	314	854	37,113	24,650
47 Kanniyampalaiyam anicut	..	308	308	..	134	134	2,698	2,698
48 Madras water-supply and irrigation system	5,630	2,330	7,960	780	1,591	2,371	32,877	24,536
49 Vallur anicut system	4,030	1,009	5,039	10	573	583	12,861	8,836
50 Palar anicut system	53,890	21,052	74,942	16,070	2,901	18,971	4,54,630	3,40,939
51 Pelandorai anicut system	2,120	12,397	14,517	100	803	903	88,145	65,743
52 Panjapatti reservoir	..	..	..	..	..	..	..	..
53 Thippayapalem project	..	213	213	..	164	164	2,672	2,672
54 Basavanna and Raya channel	..	12,604	12,604	..	3,351	3,351	1,19,156	1,08,573
Total, Unproductive Works	146,071	211,800	357,871	24,088	27,556	51,644	19,65,159	16,08,423
Grand total	1,563,725	2,602,337	4,166,062	109,837	668,329	778,166	3,05,44,805	2 57,13,720

NOTE.—The revenue due to old irrigation and new irrigation under the Cauvery Delta System fixed by the Accountant-General with reference to G.O. No. 763 (Irrigation), dated 25th March 1926, is shown below :—

	Direct receipts. RS.	Indirect receipts. RS.	Total revenue. RS.
Old irrigation	36,71,882	1,15,105	37,86,987
New irrigation	15,47,976	48,526	15,96,502
Total	52,19,858	1,63,631	53,83,489

Statement showing the financial results of irrigation under Productive and Unproductive Systems for fasli 1355 (1945–46)—*cont.*

Systems.	Direct receipts—*cont.* Deduct remissions and deductions.	Net revenue due to irrigation.	Deduct portion due to old irrigation.	Increase of revenue due to the outlay incurred.	Indirect receipts. Land assessment of waste lands brought under irrigation.	Land revenue of miscellaneous items.	Interest on sale-proceeds of tank bed lands and other waste lands.	Total.	Total of columns (13) and (17).
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
I. Productive Works—cont.									
1 Godavari Delta system	17,38,952	43,44,704	1,24,000	42,20,704	1,84,227	8,161	38,345	2,30,733	44,51,437
2 Kistna Delta system	10,05,823	48,35,232	71,000	47,64,232	1,01,734	16,703	73,773	1,92,210	49,56,442
3 Divi *cum* Kistna East Bank canal	93,008	5,28,019	20,300	5,07,719	13,253	4,086	69,866	87,205	5,94,924
4 Pennar river canals system	15,474	8,14,470	2,56,000	5,58,470	46,299	3,711	23,357	73,367	6,31,837
5 Arakkankottai channel	..	40,231	19,000	21,231	372	56	..	428	21,659
6 Tadepalle channel	12	1,69,374	76,000	93,374	2,890	39	..	2,929	96,303
7 Kalingarayan channel	212	1,37,031	85,000	52,031	419	64	..	483	52,514
8 Chembrambakkam tank	5,441	57,333	16,000	41,333	898	59	..	957	42,290
9 Poiney anicut system	41,395	70,219	38,100	32,119	5,299	131	58	5,488	37,607
10 Cheyyar anicut system	3,051	1,08,782	39,000	69,782	3,196	104	1,435	4,735	74,517
11 Tirukkoyilur anicut system	566	1,37,245	60,000	77,245	3,293	76	..	3,369	80,614
12 Shatiyatope anicut system	1,108	1,58,139	20,000	1,38,139	16,713	318	..	17,031	1,55,170
13 Mehamathur anicut system	627	25,641	4,000	21,641	94	23	79	196	21,837
14 Vriddhachalam anicut system	1,443	46,126	8,500	37,626	302	17	20	339	37,965
15 Lower Coleroon anicut system	2,589	5,93,312	1,55,000	4,38,312	51,201	318	30	51,549	4,89,861
16 Cauvery Delta system	90,634	52,19,858	33,90,209	18,29,649	1,20,157	10,571	32,903	1,63,631	19,93,280
17 Nandiyar channel system	457	33,837	17,000	16,837	60	18	172	250	17,087
18 Periyar system	6,241	10,43,131	2,04,000	8,39,131	15,400	4,940	74,523	94,863	9,33,994
19 Srivaikuntam anicut system	1,725	2,29,222	79,000	1,50,222	1,423	67	..	1,490	1,51,712
20 Marudur anicut system	462	2,09,622	1,15,000	94,622	237	42	..	279	94,901
21 Cumbum tank	4,213	31,382	30,000	1,382	446	18	8	472	1,854
22 Kattalai scheme	2,340	4,24,035	2,54,000	1,70,035	21	..	100	121	1,70,156
23 Polavaram Island system	3,745	1,17,769	..	1,17,769	..	..	..	..	1,17,769
24 Cauvery-Mettur Project	64,113	16,46,952	99,971	15,46,981	3,430	..	25,310	28,740	15,75,721
Total ..	30,83,631	2,10,21,666	51,81,080	1,58,40,586	5,71,364	49,522	3,39,979	9,60,865	1,68,01,451

II. Unproductive Works—cont.

25 Chicacole minor rivers system	2,969	1,90,204	95,000	95,204	7,065	738	71	7,874	1,03,078
26 Willingdon reservoir	4,911	1,51,217	10,590	1,40,627	448	..	..	448	1,41,075
27 Nagavalli river system	1,596	1,06,225	37,400	68,825	4,661	1,092	16,051	21,804	90,629
28 Muniyeru anicut system	2,684	56,008	2,500	53,508	4	58	..	62	53,570
29 Jangamaheswarapuram tank	..	1,165	500	665	..	..	..	..	665
30 Atmakur tank	275	1,771	..	1,771	..	..	..	..	1,771
13 Dondapad tank	..	1,869	..	1,869	8	2	..	10	1,879
32 Bhavanasi tank	..	5,916	..	5,916	..	..	..	..	5,916
33 Mopad reservoir	..	54,717	433	54,284	659	..	4,511	5,170	59,454
34 Hajipuram tank	1,767	806	..	806	38	15	17	70	876
35 Ponnalur tank	..	4,356	..	4,356	..	..	..	..	4,356
36 Anamasamudram-Biraperu tank	3,007	872	3,600	— 2,728	..	1	..	1	— 2,727
37 Yerur tank	2,766	801	425	376	22	64	..	86	462
38 Sagileru system	3,639	13,220	17,800	— 4,580	22	4	..	26	— 4,554
39 Markapur tank	23	7,067	2,130	4,937	..	1	..	1	4,938
40 Yellanur tank	474	2,017	..	2,017	613	..	491	1,104	3,121
41 Siddhapur tank	..	6,946	..	6,946	..	..	..	..	6,946
42 Nagavaram anicut and supply channel	1,393	2,681	2,256	425	146	..	871	1,017	1,442
43 Venkatapuram tank	..	2,943	..	2,943	..	..	..	..	2,943
44 Kurnool-Cuddapah canal	647	3,40,350	28,285	3,12,065	1,238	926	559	2,723	3,14,788
45 Chepad channel	25	52,449	7,587	44,862	505	26	23	554	45,416
46 Barur tank	704	23,946	5,900	18,046	186	..	601	787	18,833
47 Kanniyampalaiyam anicut	..	2,698	..	2,698	..	..	..	..	2,698
48 Madras water-supply and irrigation system	467	24,069	11,000	13,069	441	21	..	462	13,531
49 Vallur anicut	632	8,204	5,000	3,204	1,067	7	..	1,074	4,278
50 Palar anicut system	1,11,751	2,29,188	1,25,000	1,04,188	15,520	320	1,012	16,852	1,21,040
51 Pelandorai anicut system	1,605	64,138	3,000	61,138	57	21	8	86	61,224
52 Panjapatti reservoir	..	..	..	..	..	..	..	..	..
53 Thippayapalem project	..	2,672	..	2,672	..	..	..	..	2,672
54 Basavanna and Raya channel	4,518	1,04,055	..	1,04,055	..	..	..	..	1,04,055
Total	1,45,853	14,62,570	3,58,406	11,04,164	32,700	3,296	24,215	60,211	11,64,375
Grand total	32,29,484	2,24,84,236	55,39,486	1,69,44,750	6,04,064	52,818	3,64,194	10,21,076	1,79,65,826

NOTE.—The revenue due to old irrigation and new irrigation under the Cauvery Delta System fixed by the Accountant-General with reference to G.O. No. 763, Irrigation, dated 25th March 1936, is shown below:—

	Direct receipts.	Indirect receipts.	Total revenue.
	RS.	RS.	RS.
Old irrigation	36,71,882	1,15,105	37,86,987
New irrigation	15,47,976	48,526	15,96,502
Total	52,19,858	1,63,631	53,83,489

II

Systems.	Net receipts direct and indirect.				Gross indirect receipts.		
	Average for five years 1943–44.	Actuals, 1944–45.	1945–46. Revised estimates.	1945–46. Actuals.	Actuals 1944–45.	1945–46. Revised estimates.	1945–46. Actuals.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
I. Productive Works.							
1 Godavari Delta system..	44,30,541	52,44,808	50,14,000	42,30,782	2,30,733	2,22,572	2,30,733
2 Kistna Delta system ..	42,41,570	51,44,081	48,78,000	47,12,309	1,92,210	1,75,507	1,92,210
3 Divi *cum* Kistna East Bank canal.	5,42,800	6,44,942	6,04,000	5,68,671	87,205	83,119	87,205
4 Pennar River Canals system.	6,13,941	6,87,320	6,92,000	6,01,413	73,367	69,656	73,367
5 Arakkankottai channel..	16,677	21,409	27,000	20,576	428	372	428
6 Tadepalli channel ..	61,308	79,489	98,000	91,488	2,929	2,890	2,929
7 Kalingarayan channel.	33,131	46,438	33,000	49,888	483	419	483
8 Chembarambakkam tank.	26,386	47,272	28,000	40,175	957	898	957
9 Poiney anicut system ..	51,950	88,558	86,000	35,730	5,488	5,357	5,488
10 Cheyyar anicut system..	48,041	75,999	76,000	70,863	4,735	4,631	4,735
11 Tirukkoyilur anicut system.	58,198	78,943	57,000	76,583	3,369	3,293	3,369
12 Shatiyatope anicut system.	1,23,401	1,61,320	1,44,000	1,47,411	17,031	16,713	17,031
13 Mehamathur anicut system.	18,223	22,250	21,000	20,749	196	173	196
14 Vriddhachalam anicut system.	25,187	36,034	32,000	36,068	339	322	339
15 Lower Coleroon anicut system.	3,28,001	4,76,309	4,97,000	4,65,339	51,549	51,231	51,549
16 Cauvery Delta system ..	8,82,752	19,56,550	15,29,000	18,95,261	1,62,127	1,53,060	1,62,127
17 Nandiyar channel system.	12,348	15,717	15,000	16,240	250	232	250
18 Periyar system	7,08,543	8,77,004	8,37,000	8,91,020	94,863	..	94,863
19 Srivaikuntam anicut system.	1,13,779	1,40,605	1,35,000	1,44,126	1,490	1,423	1,490
20 Marudur anicut system.	64,382	89,095	78,000	90,156	279	237	279
21 Cumbum tank	4,327	13,160	7,000	1,762	472	454	472
22 Kattalai scheme ..	85,672	1,56,463	1,57,000	1,61,653	121	121	121
23 Polavaram Island system.	94,962	1,01,675	1,01,000	1,11,881	..	..	..
24 Cauvery-Mettur Project.	14,14,354	15,60,585	15,81,000	14,98,200	23,999	28,740	28,740
II. Unproductive Works.							
25 Chicacole minor rivers system.	44,242	94,945	96,000	97,928	7,874	7,136	7,874
26 Willingdon Reservoir ..	1,20,713	1,45,304	1,40,000	1,34,021	448	448	448
27 Nagavalli river system.	86,186	1,04,537	1,05,000	86,900	21,804	20,712	21,804
28 Muniyeru anicut system.	37,322	39,176	45,000	50,891	62	4	62
29 Janzamaheswarapuram tank.	506	790	1,000	632	..	..	..
30 Atmakur tank	1,669	1,931	2,000	1,682	..	..	..
31 Dondapad tank ..	2,204	2,591	2,000	1,785	10	8	10
32 Bhavanasi tank ..	4,351	5,508	5,000	5,620	..	..	..
33 Mopad reservoir ..	33,973	48,420	43,000	56,707	5,170	5,170	5,170
34 Hajipuram tank ..	3,689	5,281	5,000	833	70	55	70
35 Ponnalur tank	3,574	6,942	6,000	4,138	..	..	..
36 Anamasamudram Biraperu tank.	722	504	..	— 2,863	1	..	[illegible]
37 Yerur tank	1,393	3,160	3,000	439	86	22	86
38 Sagileru system ..	2,019	— 833	2,000	— 4,782	26	22	26
39 Markapur tank	5,364	8,573	6,000	4,691	1	..	1
40 Yellanur tank	2,841	2,966	3,000	2,989	1,104	1,104	1,104
41 Siddhapur tank ..	4,036	6,924	5,000	6,599	..	..	..
42 Nagavaram anicut and supply channel.	2,373	3,217	3,000	1,413	1,017	1,017	1,017
43 Venkatapuram tank ..	1,312	3,364	2,000	2,796	..	..	..
44 Kurnool-Cuddapah canal.	2,63,469	3,08,843	3,53,000	2,99,077	2,723	1,797	2,723
45 Chepad channel ..	38,359	44,614	43,000	43,146	554	528	554
46 Barur tank	17,091	19,133	19,000	17,921	787	787	787
47 Kanniyampalayam anicut.	350	2,698	3,000	2,563	..	..	..
48 Madras water-supply and irrigation system.	7,237	13,808	9,000	12,854	462	441	462
49 Vallur anicut system ..	1,373	4,086	3,000	4,064	1,074	1,067	1,074
50 Palar anicut system ..	1,36,013	2,58,779	2,16,000	1,15,739	16,852	16,532	16,852
51 Pelandorai anicut system.	72,688	58,794	53,000	58,163	86	65	86
52 Tippayapalem project ..	11,084	6,186	5,000	2,538	..	..	..
53 Panjapatti reservoir project.	..	..	..	..	..	..	..
54 Basavanna and Raya hcannel	..	..	..	98,852	..	..	..

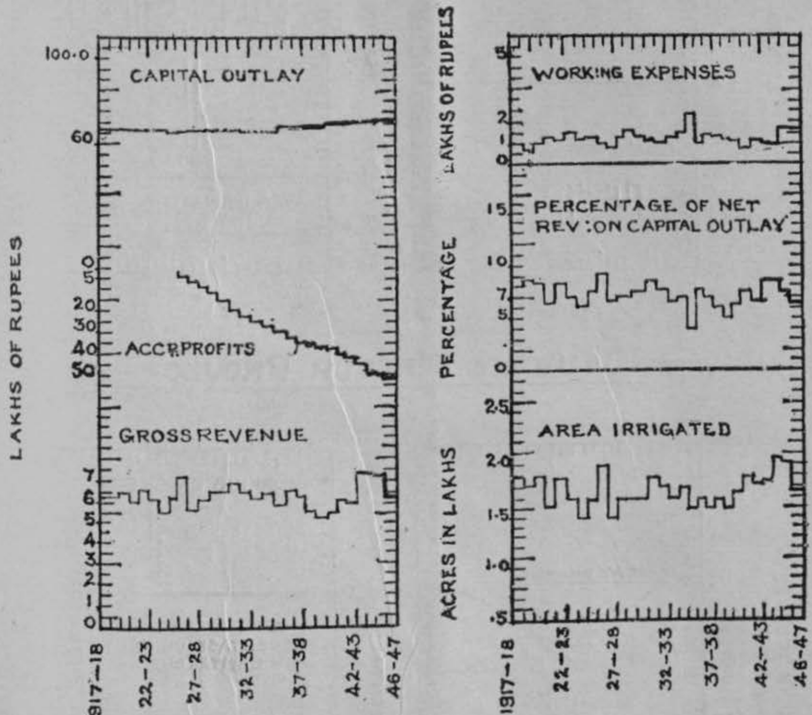
APPENDIX III.

Statement showing the extent irrigated and the revenue derived under "Minor Works" for fasli 1355 (1945-46).

Districts.	Area irrigated and charged and area irrigated free of charge. First crop.	Second crop.	Total land and irrigation revenue.	Share due to irrigation.	Deduct remissions and deductions.	Net revenue due to irrigation.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Works in charge of the Revenue Department.						
	ACS.	ACS.	RS.	RS.	RS	RS.
Vizagapatam ..	75,845	7,367	2,77,633	1,87,903	22,712	1,65,191
East Godavari ..	85,075	6,637	4,06,251	3,14,448	15,002	2,99,446
West Godavari ..	31,101	1,092	1,11.266	94,200	13,951	80,249
Kistna	23,073	211	81,329	77,497	9,376	68,121
Guntur	26,896	1,133	1,48,123	1,14,779	10,362	1,04,417
Nellore	81,079	7,626	4,15,660	3,46,198	1,19,383	2,26,815
Cuddapah	76,186	13,484	3,28,431	2,74,794	70,672	2,04,122
Anantapur	106,946	23,770	4,45,365	3,85,927	1,39,693	2,46,234
Bellary	27,150	4,719	1,53,217	1,37,126	14,005	1,23,121
Kurnool	41,872	2,402	2,10,364	1,75,402	26,382	1,49,020
Chittoor	94,014	26,250	5,41,078	4,35,047	1,22,382	3,12,665
Chingleput	177,401	35,715	6,92,166	4,93,465	48,286	4,45,179
North Arcot ..	169,989	48,718	10,68,337	7,57,559	1,80,049	5,77,510
South Arcot ..	231,907	52,216	23,67,266	19,85,716	66,620	19,19,096
Tanjore	43,451	1,671	1,17,878	89,249	31,020	58,229
Trichinopoly ..	82,417	27,111	3,88,394	2,93,450	31,058	2,62,392
Madura	117,317	33,332	6,25,788	5,14,098	71,154	4,42,944
Ramnad	21,758	7,017	1,30,666	1,10,313	3,060	1,07,253
Tinnevelly	118,480	42,779	6,23,050	5,32,550	11,934	5,20,616
Coimbatore	38,655	11,016	2,29,648	1,95,639	14,879	1,80,760
Salem	86,067	24,772	5,39,302	3,69,003	96,562	2,72,441
Total of Minor Works—Revenue Department.	1,756,679	379,068	99,01,212	78,84,363	11,18,542	67,65,821
Works in charge of the Public Works Department.						
Vizagapatam ..	65,027	7,801	3,08,880	2,11,714	30,142	1,81,572
East Godavari ..	67,896	12,977	2,38,588	1,92,520	7,899	1,84,621
West Godavari ..	16,985	161	86,624	78,937	7,392	71,545
Kistna	2,354	9	13,043	11,587	..	11,587
Guntur	3,423	50	18,766	14,731	89	14,642
Nellore	58,800	2,645	3,34,224	2,76,237	86,706	1,89,531
Cuddapah	26,968	4,791	1,49,898	1,28,621	28,186	1,00,435
Anantapur	34,049	4,734	1,77,082	1,52,418	78,214	74,204
Bellary	29,175	4,160	2,20,255	1,95,492	22,091	1,73,401
Kurnool	8,463	411	45,815	39,654	3,910	35,744
Chittoor	12,654	3,998	84,611	68,109	19,255	48,854
Chingleput	193,926	45,032	8,19,518	5,83,754	51,004	5,32,750
North Arcot ..	45,111	13,702	2,97,864	2,13,201	49,084	1,64,117
South Arcot ..	93,601	22,178	6,08,119	4,39,390	18,437	4,20,953
Tanjore	12,202	432	35,907	26,617	15,630	10,987
Trichinopoly ..	47,601	24,974	4,23,811	3,16,931	16,273	3,00,658
Madura	23,847	11,574	1,60,604	1,29,379	1,857	1,27,522
Ramnad	14,506	4,021	1,04,300	87,083	2,597	84,486
Tinnevelly	93,953	55,259	9,93,678	8,35,972	3,627	8,32,345
Coimbatore	34,849	16,519	2,80,141	2,29,739	7,877	2,21,862
Salem	27,790	10,436	2,08,042	1,41,551	23,289	1,18,262
Total of Minor Works—Public Works Department.	913,180	245,864	56,09,770	43,73,637	4,73,559	39,00,078
Revenue Department.	1,756,679	379,068	99,01,212	78,84,363	11,18,542	67,65,821
Grand total, Minor Works.	2,669,859	624,932	1,55,10,982	1,22,58,000	15,92,101	1,06,65,899

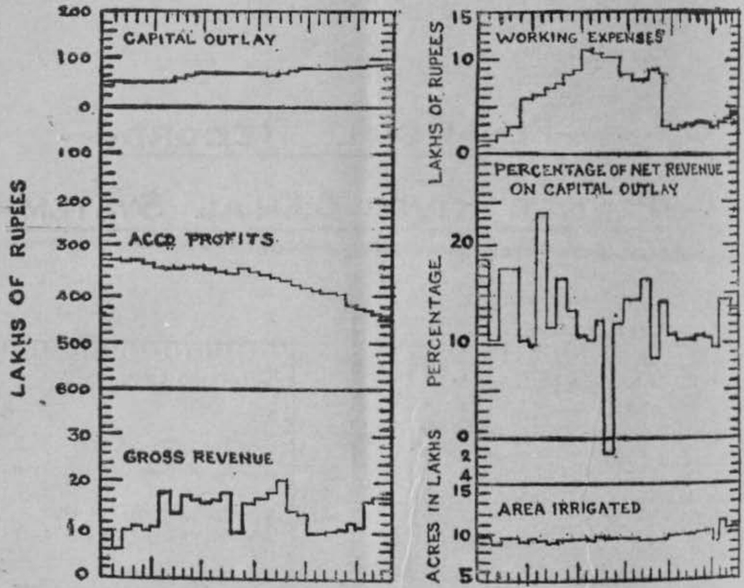
—FINANCIAL RECORD—

—PENNER RIVER CANAL SYSTEM—

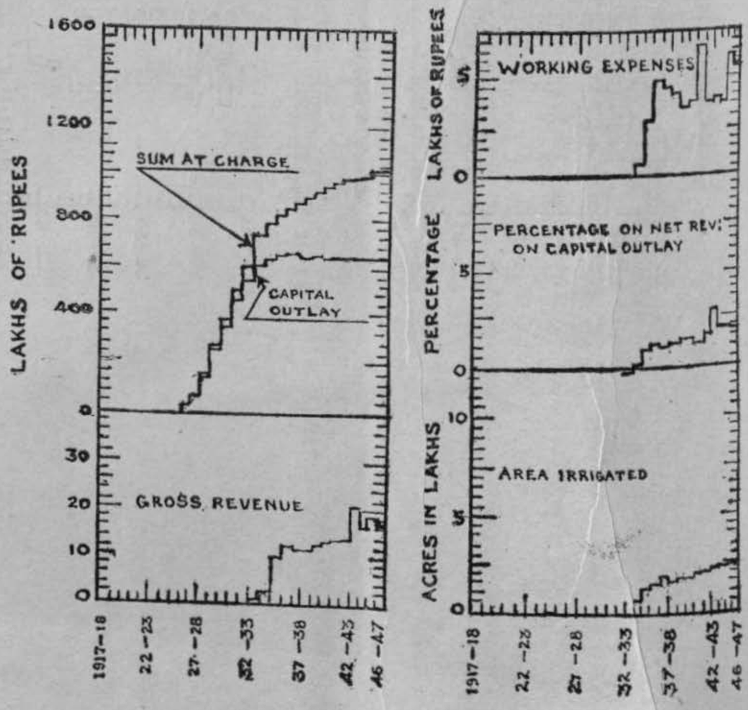


—Financial Record—

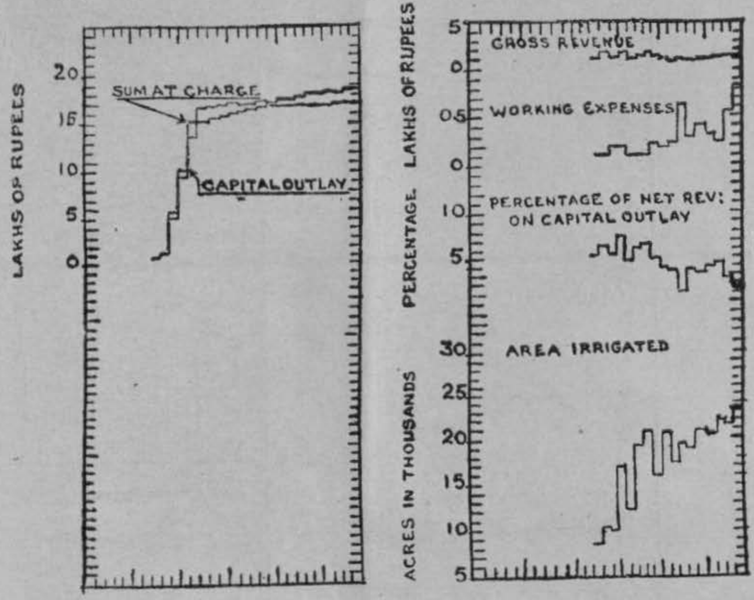
—Cauvery Delta System—



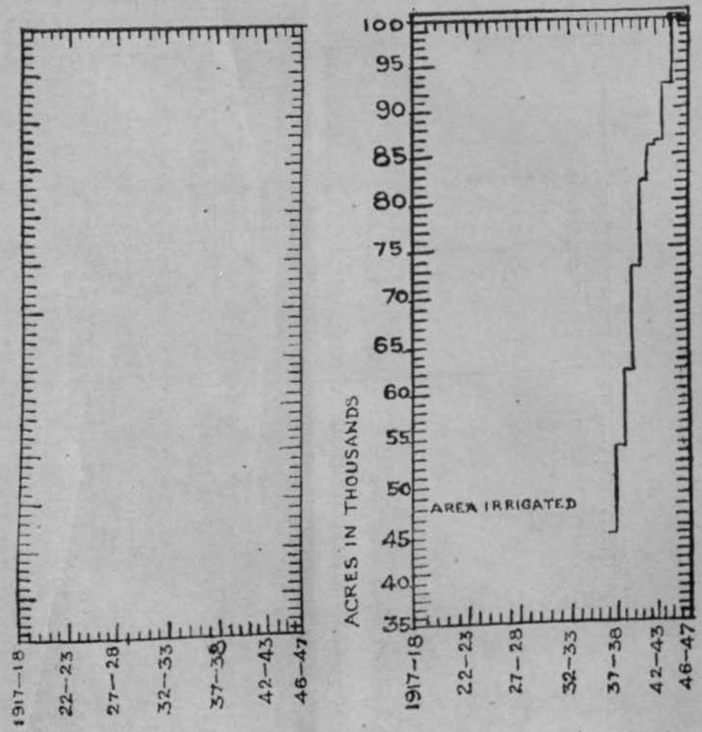
—Cauvery Mettur Project—



— FINANCIAL RECORD —
— POLAVARAM ISLAND —

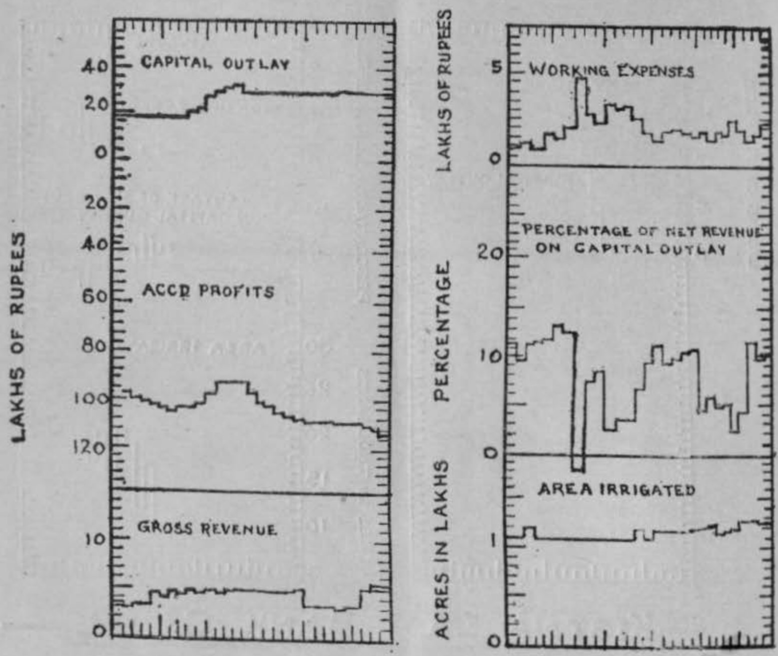


— KISTNA EAST BANK CANAL —

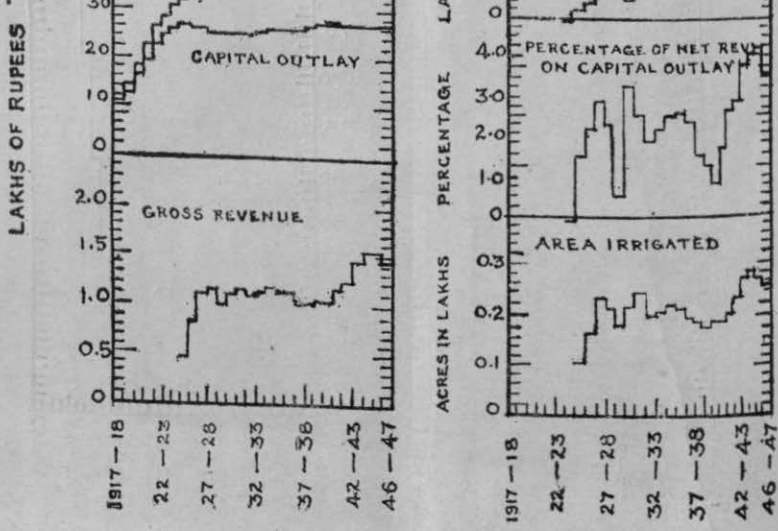


—FINANCIAL RECORD—

—LOWER COLEROON ANICUT SYSTEM—

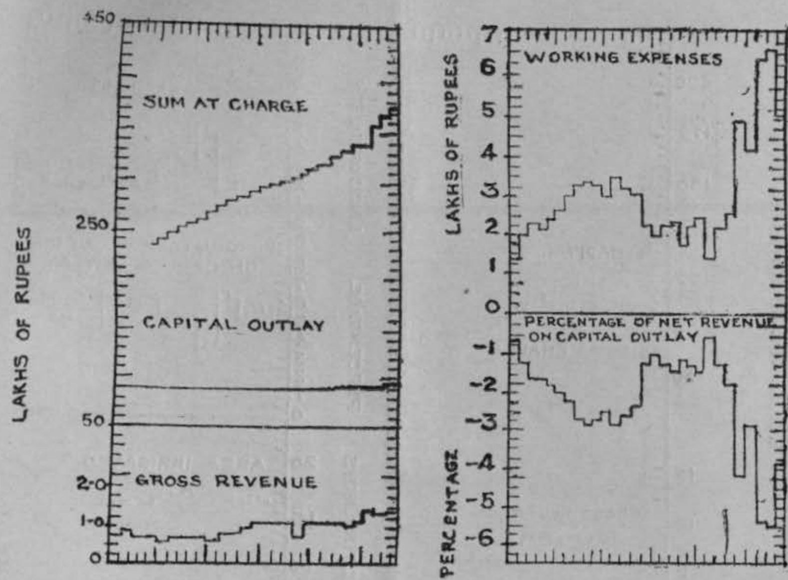


—TOLUDUR PROJECT—

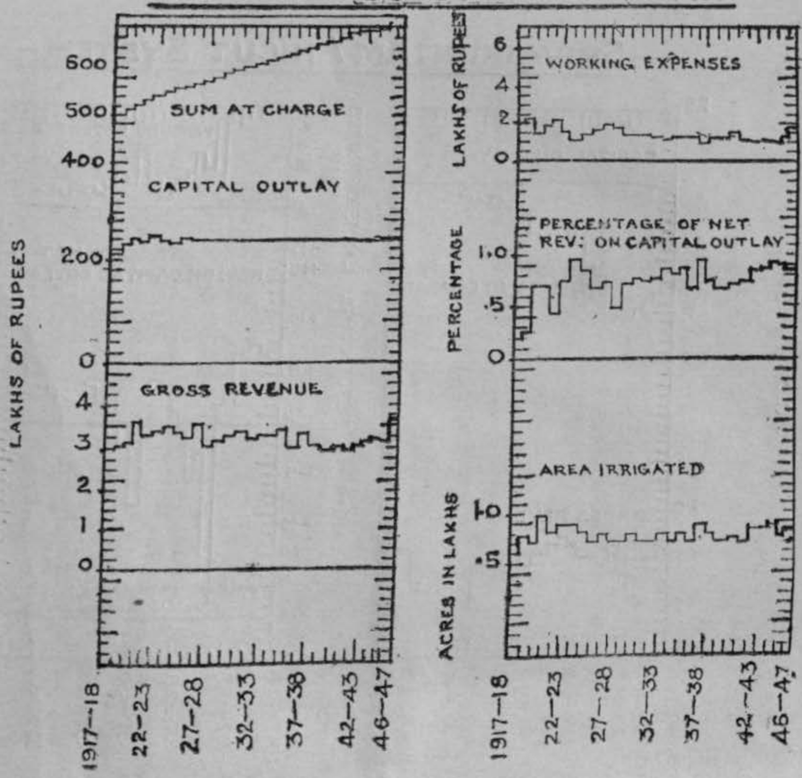


—FINANCIAL RECORD—

—BUCKINGHAM CANAL—

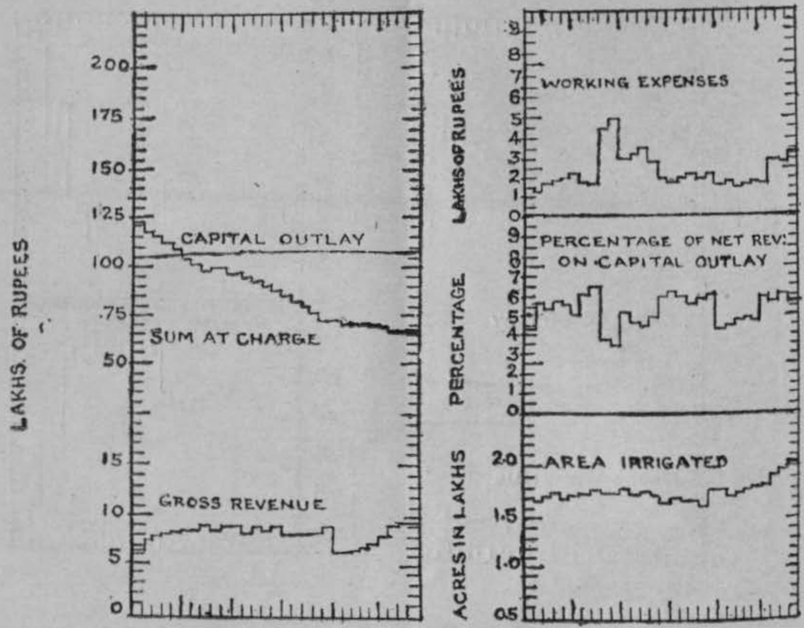


—KURNOOL CUDDAPAH CANAL—



—Financial Record—

—Periyar System—



—Srivaikuntam Anicut System—

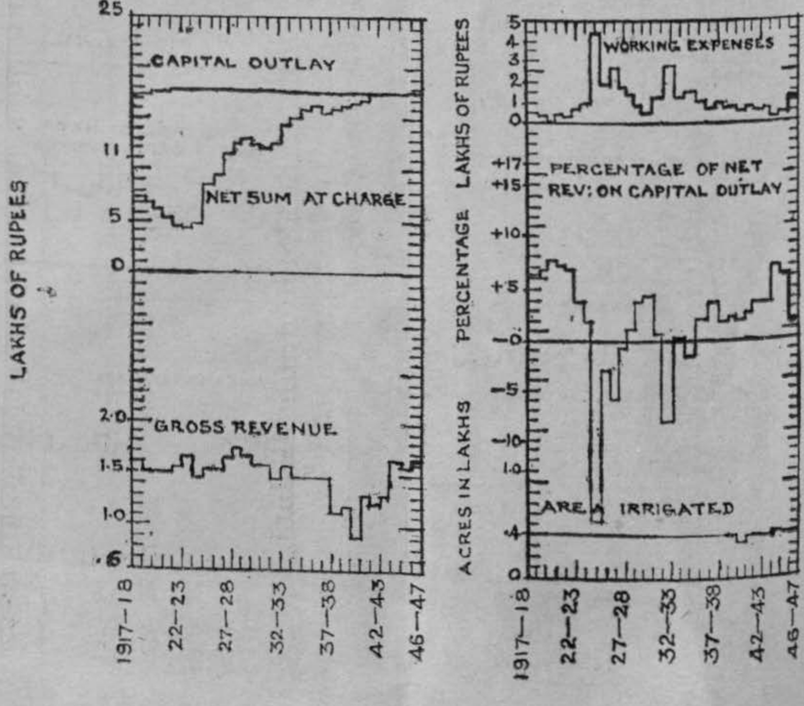
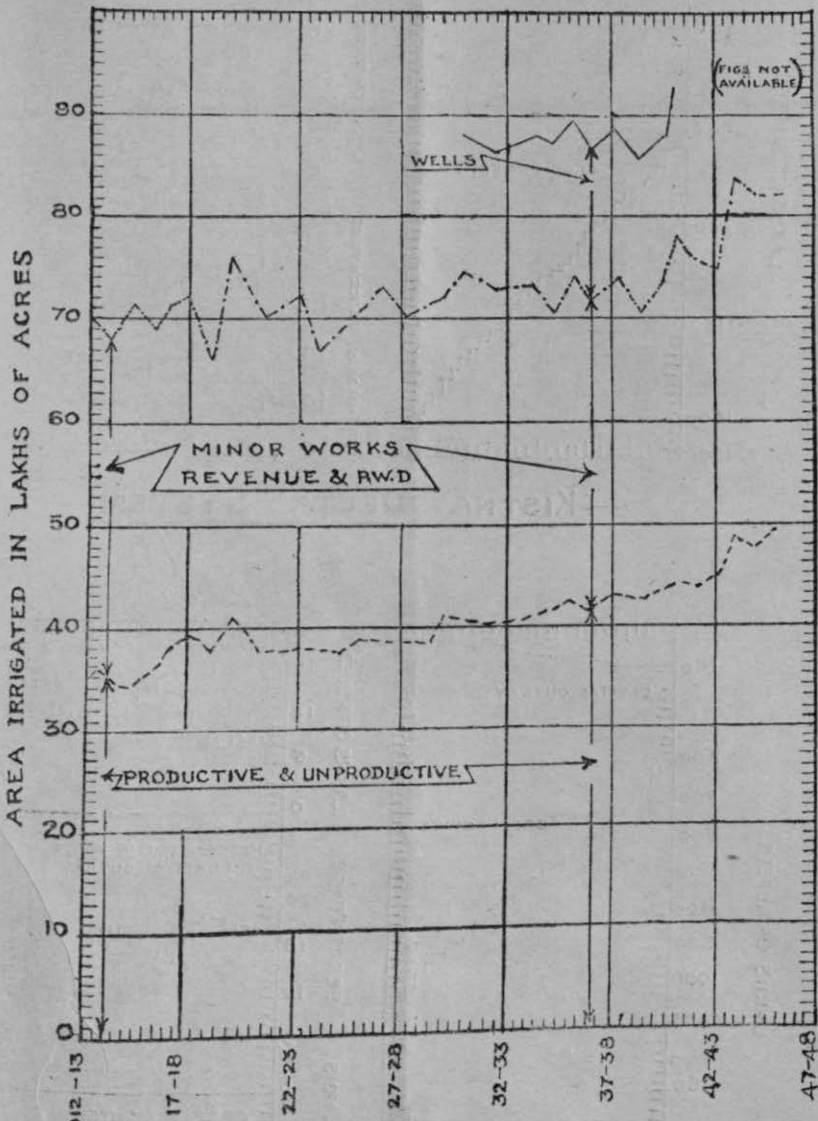
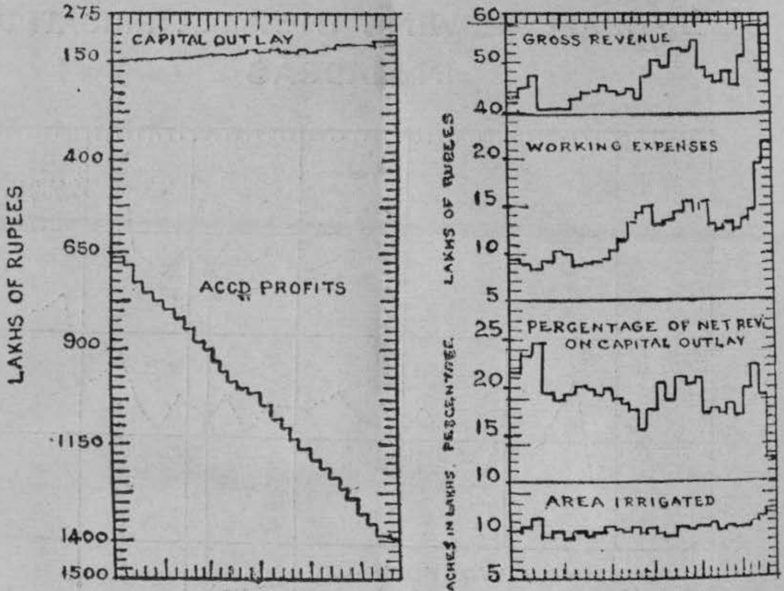


DIAGRAM SHOWING THE AREA IRRIGATED IN MADRAS

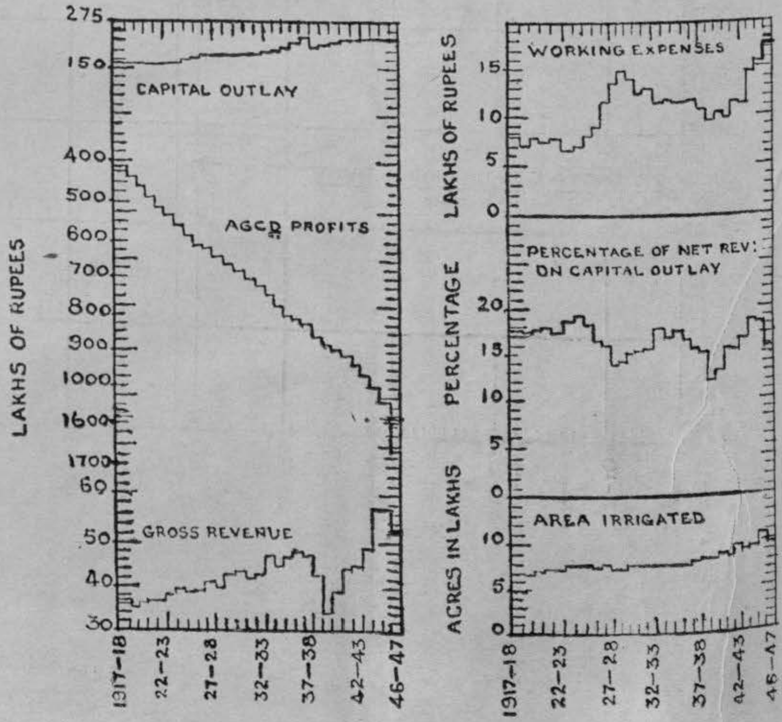


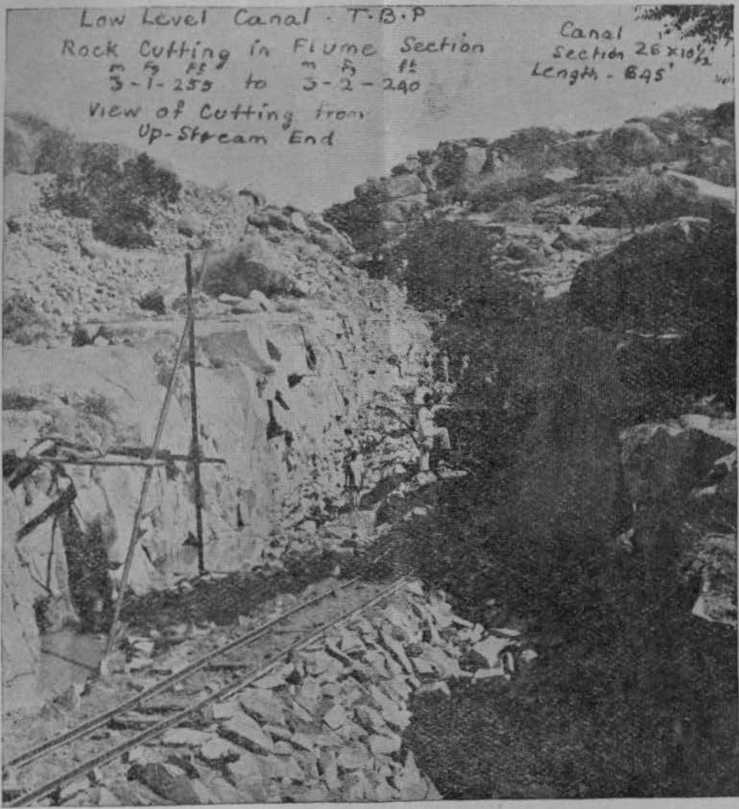
—FINANCIAL RECORD—

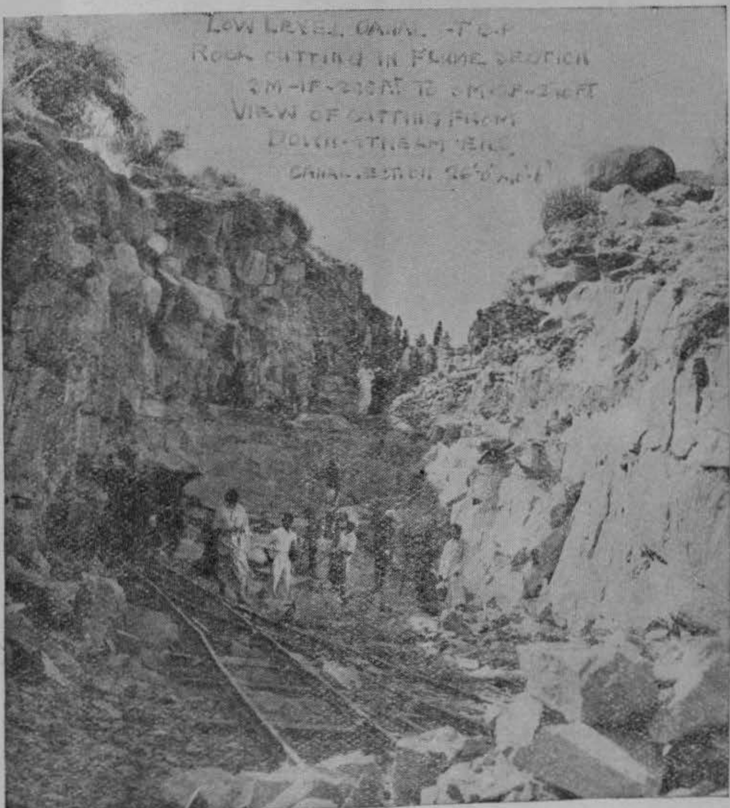
—GODAVARI DELTA SYSTEM—

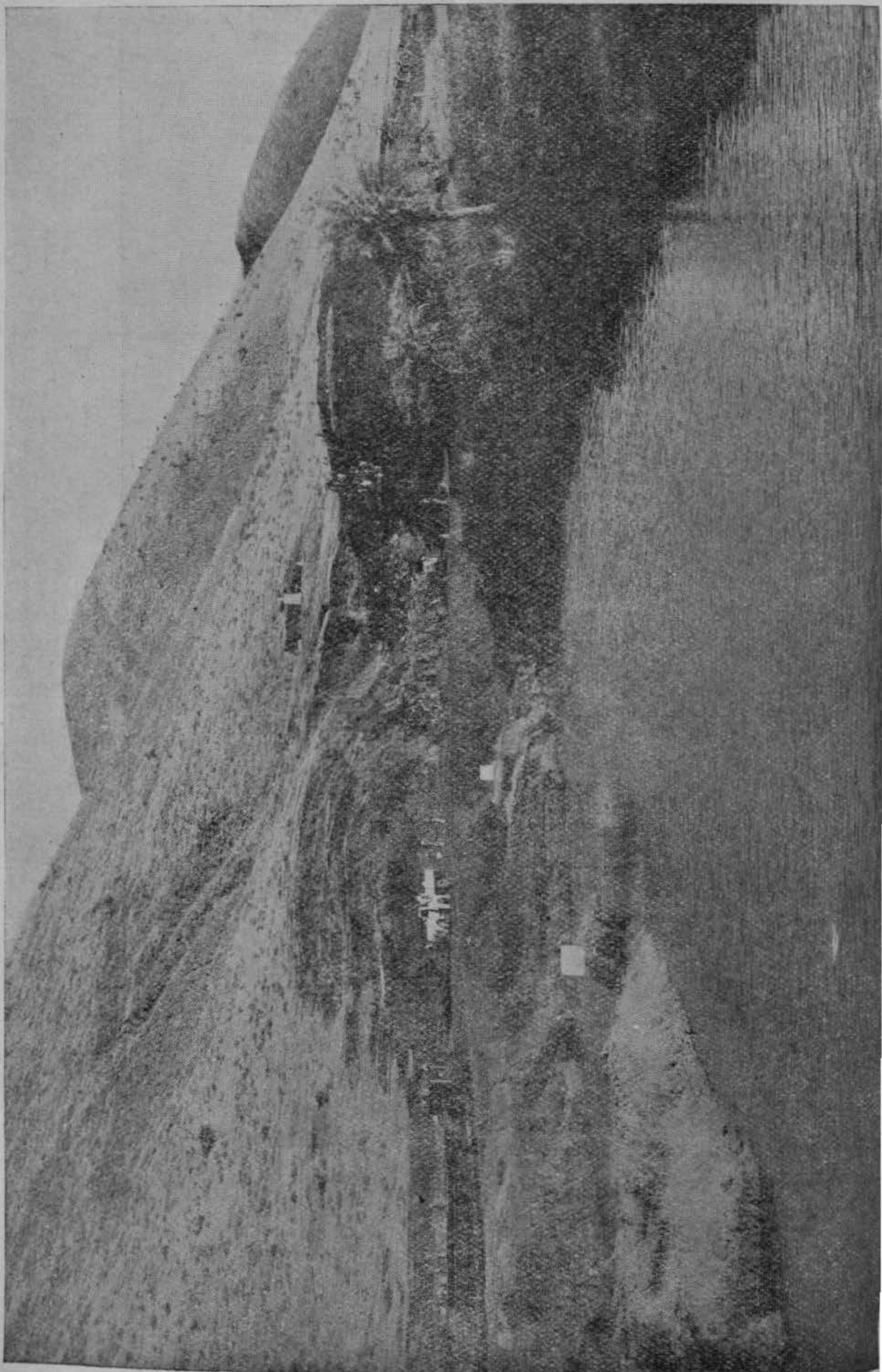


—KISTNA DELTA SYSTEM—




Low Level Canal - T.B.P
Rock Cutting in Flume Section
m fg ft to m fg ft
3-1-255 to 3-2-240
View of Cutting from
Up-Stream End
Canal
Section 26' x 10½'
Length - 645'

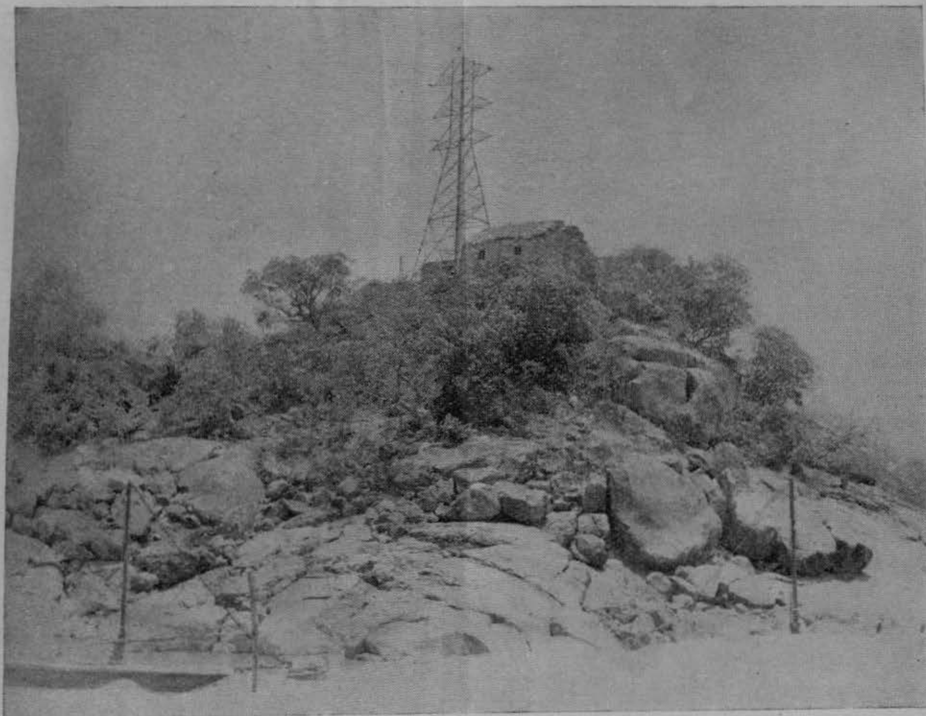

VIEW OF





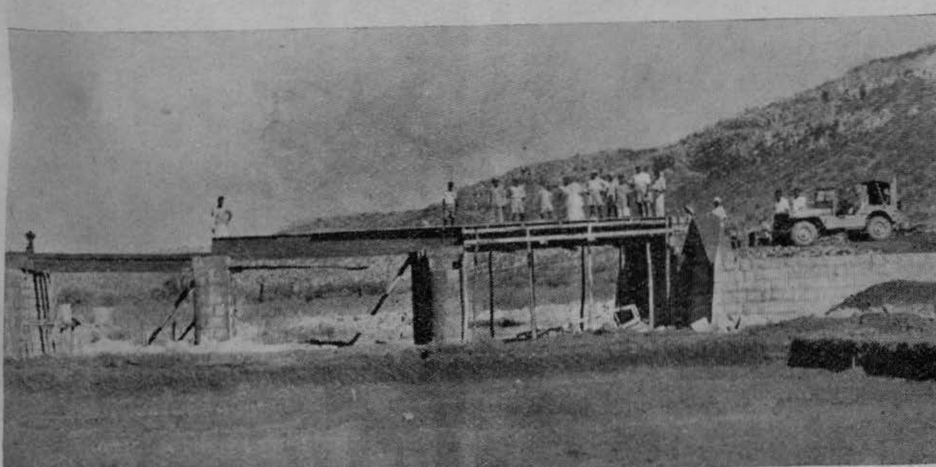
DAM LINE EXCAVATION—VIEW FROM RIGHT FLANK END, T.B.P. HEADWORKS.





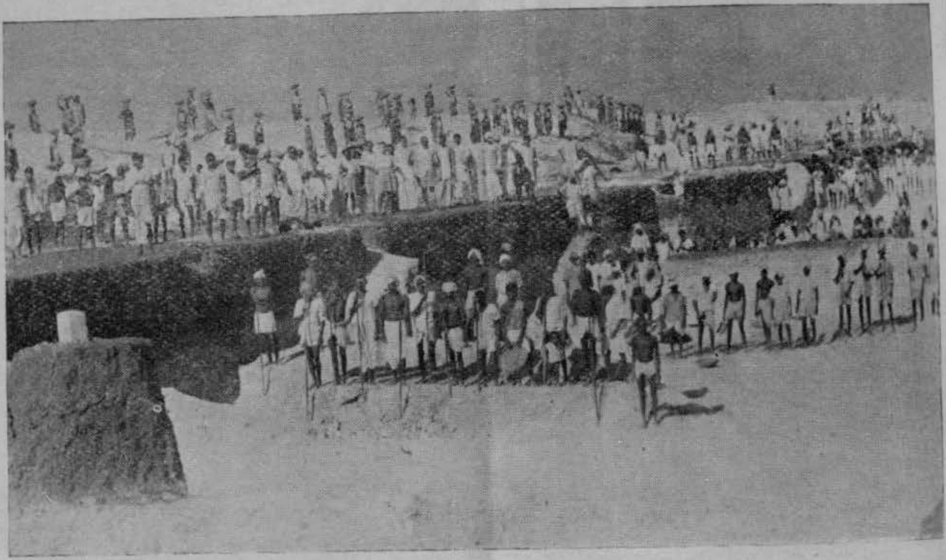
NORTHERN FACE OF THE MAHANANDESWAR HILL.

The pylon on top of the hill is the terminal tower of the electric transmission line from Rajahmundry Paper Mills (11 K.V.).



B CLASS BRIDGE AT MILE 122/7/360.

CAMP BUILDINGS, BIRD'S EYE VIEW, T.B.P. HEADWORKS.

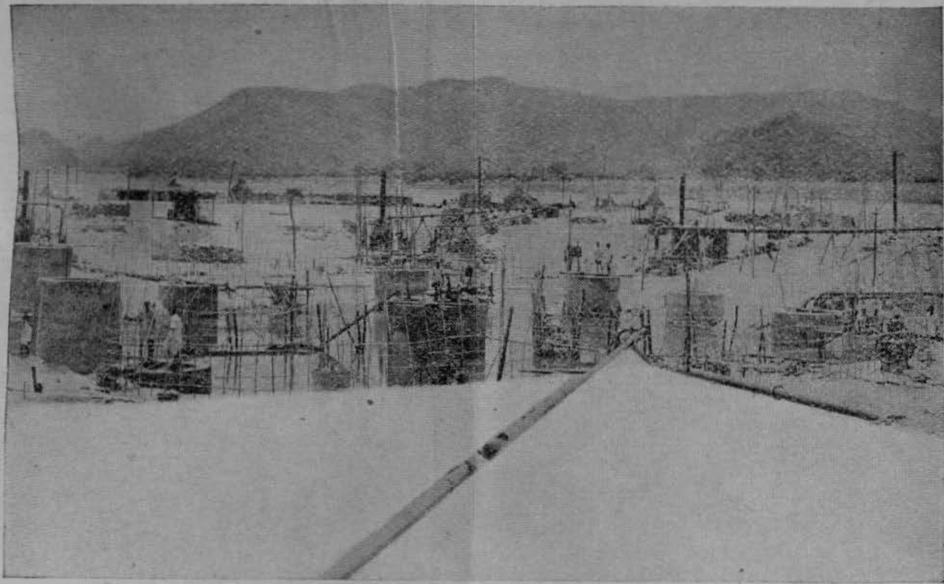


CANAL EXCAVATION AT MILE 152/5/330.

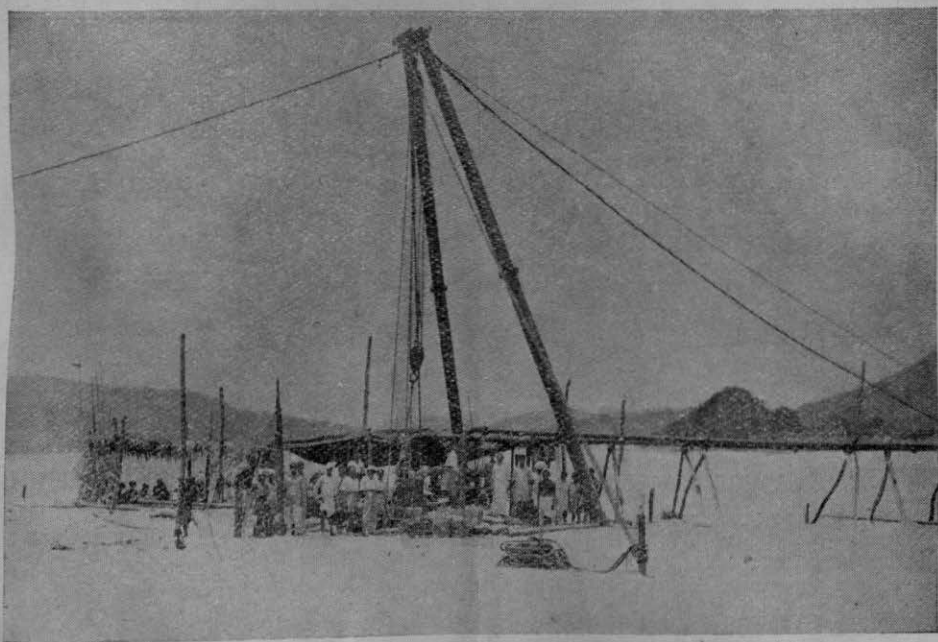


FROM TOP OF MAHANANDESWAR HILL (MIDDLE HILL) FACING UPSTREAM.

In the foreground is seen one of the measuring weirs for calculating the discharge of the pum
he channel in rear is rivetted with sand bags. In the centre is the experimental trench No. 2 w
ripheral and central wells and the pumps and pipe lines discharging into common cisterns which
nnected to measuring weirs. The shear leg in the distance indicates the position of the 36″ p
aft from which pumping experiments were carried out.



TRENCH No. 2 SEEN FROM SOUTH WESTERN CORNER (I.E., NEAR WELL No. 9).



36″ PIPE SHAFT TAKEN 54 FT. INTO SAND WITH 24″ PIPE LET IN FOR PUMPING TESTS. TWO ELECTRICALLY DRIVEN PUMPS DELIVERING 1,200 GALLONS PER MINUTE.



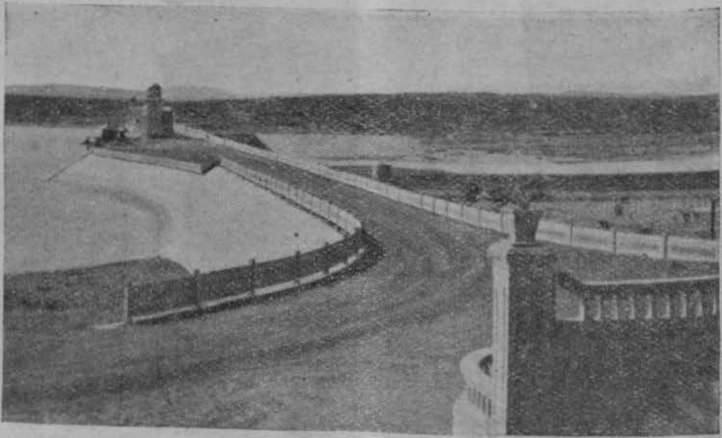
Layout of Irrigation Research Station, Poondi.



Tungabhadra Spillway Model.



Irrigation Research Station, Poondi Building (during Construction).



Poondi Reservoir.

AGENTS FOR THE SALE OF MADRAS GOVERNMENT PUBLICATIONS

IN INDIA

BANWARI LAL JAIN, 1719, Motikarta, Agra.
CHANDRAKANT CHIMANLAL VARA, Booksellers, Ahmedabad.
M. G. BAKSHI, Akola.
KITABISTAN, Publishers, Allahabad.
NEW BOOK COMPANY, Booksellers, etc., "Kitab Mahal," 188-90, Hornby Road, Bombay.
D. B. TARAPOREVALA SONS & CO., Bombay.
THACKER & CO. (LTD.), Bombay.
N. S. WAGLE, Circulating Agent and Bookseller, No. 6, Tribhuvan Road, Girgaon, Bombay.
THE BOOK COMPANY, Calcutta.
BUTTERWORTH & CO. (LTD.), 6, Hastings Street, Calcutta.
R. CAMBRAY & CO., Calcutta.
LAW BOOK SOCIETY, Publishers and Printers, 65/3, Harrison Road, Calcutta.
THACKER, SPINK & CO., 3, Esplanade East, Calcutta.
K. KRISHNA AYYAR BROTHERS, Booksellers, Publishers, etc., The Round, Trichur (Cochin State).
The Manager, THE HYDERABAD BOOK DEPÔT, Hyderabad (Deccan).
The Secretary, OSMANIA UNIVERSITY STUDENTS' CO-OPERATIVE BOOK DEPOT, Lallaguda P.O., Hyderabad (Deccan).
SOUTHERN INDIAN AGRICULTURAL STORES, Jullundur.
The Director, "THE FRENCH INDIA GAZETTE," Karaikal.
M. R. APPADURAI, Bookseller, 57-A, Anderson Street, Esplanade, Madras.
THE CHRISTIAN LITERATURE SOCIETY FOR INDIA, Post Box No. 501, Park Town, Madras.
CITY BOOK COMPANY, Post Box No. 283, Madras.
C. COOMARASWAMI NAYUDU AND SONS, 27 and 35, Chinnathambi Street, Madras.
HIGGINBOTHAMS (LTD.), Mount Road, Madras.
THE SWADESAMITRAN, LTD., Mount Road, Madras.
MACMILLAN & CO., LTD., Mount Road, Madras.
G. A. NATESAN & CO., Madras.
V. RAMASWAMI SASTRULU & SONS, 292, Esplanade, Madras.
P. VARADACHARI & CO., Booksellers, 8, Linghi Chetti Street, Madras.
Agent, THE SOUTH INDIA SAIVA SIDDHANTA WORKS PUBLISHING SOCIETY, LTD., 6, Coral Merchant Street, Madras.
VENKATRAMA & CO., Educational Publishers and Booksellers, Esplanade, Georgetown, Madras.
THE LITTLE FLOWER COMPANY, Educational Publishers and Booksellers, 56, Thambu Chetti Street, Georgetown, Madras E.
V. PERUMAL CHETTY AND SONS, 5, Stringers Street, Georgetown, Madras.
MOHAMED ALI HUSAIN, Educational Publisher and Proprietor, "Madina Press," Triplicane P.O., Madras.
T. KANAKAYYA, Retired Police Officer and Press Correspondent, Buckinghampet, Bezwada (Madras).
THE DECCAN PUBLISHING HOUSE, Huzur Road, Calicut (Madras).
THE NATIONAL BOOKSTALL, Cannanore (Madras).
THE EDUCATIONAL SUPPLIES COMPANY, 142-A, Ponnurangam Street, R.S. Puram, Coimbatore (Madras).
Secretary, RAJAJI STATIONERY DEPOT, Devakottai (Madras).
SRINIVAS & CO., Town High School Road, Kumbakonam, (Madras).
E. M. GOPALAKRISHNA KONE, Pudumantapam, Madura (Madras).
K. BHOJA RAO & CO., Booksellers, Kodialbail, Mangalore (Madras).
M. SESHACHALAM & CO., Proprietors, The Hindu Press, Masulipatam (Madras).
B. VENKATARAMAN, Correspondent, Permanent Fund Buildings, Neela South Street, Negapatam (Madras).
D. SRI KRISHNAMURTI, Editor of "Grama Paripalana," Ongole (Madras).
THE HINDUSTAN PUBLISHING CO., LTD., Rajahmundry (Madras).
THE MODERN STORES, Salem (Madras).
The Proprietor, THE HOUSE OF KNOWLEDGE, Booksellers and Publishers, Palli agraharam P.O., Tanjore (Madras).
SIVAGAMI PUBLISHING HOUSE, Booksellers and Publishers, Srivaikuntam, Tinnevelly (Madras).
S. KRISHNASWAMI & CO., Teppakulam Post, Trichinopoly Fort (Madras).
L. VAIDYANATHA AYYAR, Law Bookseller, Teppakulam P.O., Trichinopoly (Madras).
A. VENKATASUBBAN, Law Bookseller, Vellore (Madras).
BHAWNANI & SONS, Booksellers, etc., Connaught Place, New Delhi.
The Manager, THE INTERNATIONAL BOOK SERVICE, Booksellers, Publishers, News Agents and Stationers, Poona 4.
P. N. SWAMINATHA SIVAN & CO., Commission Agents, Booksellers, etc., Pudukkottai State. (Branches also at Karaikudi, Devakottai and Trichinopoly.)
The Proprietor, THE PUNJAB SANSKRIT BOOK DEPOT, Saidmitha Street, Lahore (Punjab).
MOHANLAL DOSSABHAI SHAH, Books Agent, etc., Rajkot.
B. S. MATHUR & CO., Chatur Vilas, Paota Civil Lines, Jodhpur (Rajputana).
THE BOOKLOVERS' RESORT, Booksellers and News Agents, Taikad, Trivandrum.

NOTICE.

Official publications may be obtained in the United Kingdom either direct from the Office of the High Commissioner for India, India House, Aldwych, London W.C. 2 or through any bookseller.